CHATHAM COUNTY HURRICANE RESPONSE PLAN

FEBRUARY, 1982

prepared by
Coastal Area Planning
and Development Commission
cooperation with
:deral Emergency Management Agency and
eorgia Emergency Management Agency

CHATHAM COUNTY

HURRICANE RESPONSE PLAN

Prepared by

COASTAL AREA PLANNING & DEVELOPMENT COMMISSION

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The substance and findings of that work are dedicated to the public. The author and publisher are solely responsible for the accuracy of the statements and interpretations contained in this publication. Such interpretations do not necessarily reflect the views of the Government.

Contract Number

EMW - K - 0485

March, 1982

EXECUTIVE DEPARTMENT

THE STATE OF GEORGIA

Executive Order

By the Governor:

WHEREAS: The Georgia Natural Disaster Operations Plan and the assignment of primary and support responsibilities for various emergency services under the plan were provided for by Executive Orders dated February 8, 1978 and April 5, 1979; and

WHEREAS: The 1981 Session of the Georgia General Assembly amended the Georgia Civil Defense Act of 1951, as amended, by changing the short title of said Act to the Georgia Emergency Management Act of 1981, redesignating the State Civil Defense Agency as the Georgia Emergency Management Agency, and changing all references and functions related to Civil Defense to Emergency Management; and

WHEREAS: The effective date of this amendment was July 1, 1981.

NOW, THEREFORE, PURSUANT TO THE AUTHORITY VESTED IN ME AS GOVERNOR OF THE STATE OF GEORGIA, IT IS HEREBY

ORDERED: That the Executive Orders dated February 8, 1978 and April 5, 1979 be amended by deleting the words "State Civil Defense Agency" and inserting in lieu thereof the words "Georgia Emergency Management Agency"; by deleting the words "Director of Civil Defense" in their entirety wherever the same may appear in the aforementioned Executive Orders and inserting in lieu thereof the words "Director of Emergency Management"; by deleting the words "Civil Defense Division" in their entirety wherever the same may appear in the aforementioned Executive Orders and inserting in lieu thereof the words "Emergency Management Division"; and by deleting the words "Civil Defense" in their entirety wherever the same may appear in the aforementioned Executive Orders and inserting in lieu thereof the words "Emergency Management".

AND IT IS FURTHER

ORDERED: That any Executive Order in conflict with this Order is hereby rescinded.

This 25th day of August, 1981.

George Busbee
GOVERNOR

ATTEST:

Tom Perdue
EXECUTIVE SECRETARY

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I. INTRODUCTION

The purpose of this plan is to outline procedures for Hurricane Response. It has been prepared by the Chatham County Board of Commissioners, Chatham County Civil Defense Director and other local officials to support the Chatham County Emergency and Disaster Operations Plan (EDOP). The 21 Annexes of the EDOP will not be repeated, rather, functions specifically requiring additional detail for hurricane response will be expanded.

This plan provides primarily for the response activities of local government departments within the county. It also addresses assistance available from State and Federal agencies in the event that hurricane response efforts are beyond the capability of local government. Volunteer group support is also addressed in each section.

This plan has been developed under the guidance of the Georgia Emergency Management Agency (GEMA) and in accordance with the Hurricane Evacuation Plan for Coastal Georgia.

DEFINITIONS

TROPICAL DISTURBANCE----------A moving area of thunderstorms in the tropics.

TROPICAL DEPRESSION----------An area of low pressure rotary circulation of clouds and winds to 38 MPH.

TROPICAL STORM----------Counterclockwise circulation of clouds and winds 39 MPH - 73 MPH. The storm is assigned a name.

HURRICANE----------When a Tropical Storm reaches winds of 74 MPH or more it is classified as a Hurricane. Bad weather is generally widespread throughout the storm system.

A hurricane's strength is described by five categories. This is called the Saffir-Simpson Hurricane Scale*:

CATEGORY ONE: Winds of 74-95 miles per hour. Damage primarily to shrubbery, tree foliage and unanchored mobile homes. No real damage to other structures. Some damage to poorly constructed signs. And/or: storm surge 8 to 9.5 feet above normal tide level. Low lying coastal roads inundated, minor pier damage, some small craft in exposed anchorage torn from moorings.

CATEGORY TWO: Winds of 96-110 miles per hour. Considerable damage to shrubbery and tree foliage. Some trees blown down. Major damage to exposed mobile homes. Extensive damage to poorly constructed signs. Some damage to roofing material of buildings. And/or: storm surge of 11 to 13 feet above normal tide level. Coastal roads and low lying escape routes inland cut by rising water 7 to 8 hours before arrival of hurricane center. Considerable damage to piers. Marinas flooded. Small craft in unprotected anchorages town from moorings. Evacuation of some shoreline residences and low-lying areas required.

CATEGORY THREE: Winds of 111 to 130 miles per hour. Foliage torn from trees, large trees blown down. Practically all poorly constructed signs blown down. Some damage to roofing materials of buildings; some window and door damage. Some structural damage to small buildings. Mobile homes destroyed. And/or: storm surge 17 to 20 feet above normal tide level. Serious flooding at coast and many small structures near coast destroyed. Larger structures near coast damaged by battering waves and floating debris. Low-lying escape routes inland cut by rising water 9 to 10 hours before hurricane center arrives. Major erosion of beaches. Massive evacuation of all residences within 500 yards of shore possibly required, and of single-story residences on low ground within 2 miles of shore.

CATEGORY FOUR: Winds of 131 to 155 miles per hour. Shrubs and trees blown down, all signs down. Extensive damage to roofing materials, windows and doors. Complete failure of roofs on many small residences. Complete destruction of mobile homes. And/or: storm surge 23 to 26.5 feet above normal tide level. Flat terrain 30 feet or less above sea-level flooded inland as far as 6 miles.

*Estimated surge heights presented here are for the Georgia coast. (See Attachment One - Storm Surge Data).

Major damage to lower floors of structures near shore due to flooding and battering of waves and floating debris. Low-lying escape routes inland cut by rising water 11 to 12 hours before hurricane center arrives. Major erosion of beaches. Massive evacuation of all residences within 500 yards of shore possibly required, and of single-story residences on low ground within 2 miles of shore.

CATEGORY FIVE: Winds greater than 155 miles per hour. Shrubs and trees blown down, considerable damage to roofs of buildings all signs blown down. Very severe and extensive damage to windows and doors. Complete failure to roofs of many residences and industrial buildings. Extensive shattering of glass in windows and doors. Some complete building failures. Small buildings overturned or blown away. Complete destruction of mobile homes. And/or: storm surge greater than 27 feet above normal tide level. Major damage to lower floors of all structures less than 15 feet above sea level within 500 yards of shore. Low-lying escape routes inland cut by rising water 12 to 13 hours before hurricane center arrives. Massive evacuation of residential areas on low ground within 5 to 10 miles of shore possibly required.

IT IS IMPORTANT TO REMEMBER THAT THE ARRIVAL OF THE STORM CENTER WILL BE PRECEDED BY STRONG WINDS AND RAIN SEVERAL HOURS BEFORE ACTUAL LANDFALL.

ADVISORY	A method for disseminating hurricane and storm data to the public every 6 hours. Small craft warnings are released as necessary.
SPECIAL ADVISORY or BULLETIN	Warning given anytime there is a significant change in weather conditions or change in warnings.
INTERMEDIATE ADVISORY or BULLETIN	A method of updating regular advisory information every 2 or 3 hours as necessary.
LOCAL STATEMENT	These are disseminated by the local National Weather Service office and provide specific information about the anticipated effects of the storm for local areas.
GALE WARNING	Wind speed of 39-54 MPH expected.
STORM WARNING	Wind speed of 55-73 MPH expected.
MAJOR STORM	Category 3, 4 or 5 storm.
HURRICANE WATCH	A hurricane may threaten your area within 24 to 36 hours.
HURRICANE WARNING	A hurricane is expected to strike your area within 24 hours or less.
TORNADO WATCH	Tornadoes and severe thunderstorms are possible in your area.

TORNADO WARNING---------- Tornado detected in your area, TAKE SHELTER.

STORM SURGE---------- The strong winds associated with Hurricanes and Tropical Storms cause the sea level to rise above normal tidal heights, with giant wind-driven waves and strong unpredictable currents, sometimes covering 50 miles.

CONTROL GROUP---------- The Executive group within local government who make decisions about local response activities.

SUPPORT GROUP---------- The local governmental departments and volunteers who will carry out the response activities upon direction of the control group.

DIRECTION AND CONTROL---------- The management of emergency response. The concept of direction and control provides the framework and legal authority for decisions to be made within the county and city government. It also provides for the organization of response teams and direction of their activities.

II. HURRICANE HAZARDS

The three major hazards produced by a hurricane are the storm surge, high winds, and rainfall. Of these, the storm surge is by far the most dangerous, historically causing nine out of 10 hurricane-related deaths. The high winds of a hurricane can also have a devastating effect on persons outdoors or inside unsound structures during the passage of the storm. Finally, although rainfall usually does not directly cause death in a hurricane, it may inundate potential evacuation routes and prevent persons from evacuating areas vulnerable to the storm surge.

Storm Tides and Wave Heights

Storm tides and floods account for over three-fourths of the deaths and much of the destruction associated with hurricanes. Much of their destructiveness results from the rapid rise of the tide. Near the head of an estuary, such as those along Georgia's coast, the highest tides may be twice the height of those on the open coast.

The storm surge is the difference between the storm-induced water level and the normal water level. Storm surge is also a name for the swell or dome of water pushed against the shore as a hurricane approaches land. On the open ocean, the surge may hardly be noticeable, but when it approaches shore, the effect is dramatic. The shallower the coastal water, the higher the surge. Depending on the conformation of the shore and ocean bottom, the storm surge may reach heights of 8' or more above the normal (astronomical) tide level.

The Continental Shelf at the Georgia Coast slopes more gradually than any other area along the Atlantic Coast. Thus, the highest storm surge along the Atlantic Coast would be produced at the Georgia Coast. The record storm tide in Georgia 19.5' occurred at Savannah Beach in 1893.

Many factors are involved in the formation and degree of propagation of a storm surge. These include the intensity of the hurricane, the size of the hurricane, the forward speed of the hurricane, bottom conditions where the surge comes ashore, the position or angle of the hurricane's track as it crosses the coastline, and the physical configuration of the coastline where the surge comes ashore.

The more intense the hurricane, the higher the surge will be. Generally, shallow water locally off a coast where the hurricane comes ashore increases the surge height. Also, the closer to perpendicular that the track of the hurricane follows in relation to the coastline, the higher the surge will be. The presence of a major bay, inlet, or river mouth where the surge comes ashore can greatly amplify the height of surge as it travels from the bay or river mouth to the back of the bay or up the river. This potential "funneling effect" of the surge is a particular problem in the Brunswick and Savannah areas.

The second important effect of the storm surge is its ability to inundate coastal roadways hours before the eye of the hurricane actually makes landfall (eye landfall). This would render such potential evacuation routes useless to vehicles attempting to flee from areas vulnerable to the approaching brunt of the surge.

High Winds

High winds also render certain segments of the population vulnerable to the passing hurricane and those persons should be evacuated. This hazard applies to residents of structures unable to withstand the stress and uplift forces from hurricane force winds. Hurricane force winds are defined as winds with a maximum sustained velocity exceeding 74 miles per hour (mph). Hurricane winds have been recorded as high as 190 mph.

Mobile homes are particularly susceptible to hurricane force winds. Mobile homes are necessarily of lightweight construction, with generally flat sides and ends. Because of these characteristics, the winds of hurricanes can toss mobile homes around, rolling them over and over to complete destruction. In addition, even a mobile home that is not overturned is quite vulnerable to smashing from other neighboring mobile home units rolling into it.

Although local regulations require that mobile homes be anchored to withstand high winds with "over-the-top" and frame tiedowns, anchorage system requirements usually are designed to withstand a wind velocity of from 70 to 110 mph.[2] Because hurricane winds can reach 190 mph, the National Weather Service recommends that all residents of mobile homes evacuate to a more sound structure when threatened by the direct hit of a hurricane.

Just as with the analysis of the storm surge, the high winds hazard must not only be considered as to its predicted extent of effect, but also its timing effect. Dangerously high winds usually arrive at the coastline hours before the eye of a hurricane makes landfall. Evacuation activities cannot be safely carried out after the arrival of sustained gale force winds (40 mph including significantly higher gusts). Therefore, all evacuees should have completed their movement to their destinations before the arrival of sustained gale force winds.

Rainfall

No predictive tool is available for determining the rate and ultimate geographic distribution of the expected six to 12 inches of rainfall generally accompanying a hurricane. However, rainfall exerts only a minor influence on the transient water levels of a storm surge.[3]

Rainfall in itself does not normally necessitate the emergency evacuation of large

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[2]U.S. Department of Defense, Defense Civil Preparedness Agency, Protecting Mobile Homes from High Winds, U. S. Government Printing Office, 1972, p. 8.

[3]Kenneth C. Crawford, Hurricane Surge Potentials Over Southeast Louisiana as Revealed by a Storm-Surge Forecast Model: A Preliminary Study, U.S. Department of Commerce, NOAA-NWS, August, 1978, p.5

numbers of residents during the passage of a hurricane as does the storm surge. However, as stated earlier, it may cause the early inundation of roadways sought as evacuation routes by vehicles attempting to escape from areas vulnerable to the approaching storm surge.

Even though rainfall normally does not directly cause loss of life, freshwater inundation of roadways preceding hurricane eye landfall could well cause the severing of evacuation routes, adding critical hours to the overall evacuation time.

SPLASH (Special Program to List Amplitudes of Surge from Hurricanes)

Anticipated storm surge levels for the open coast of Georgia have been calculated by the National Hurricane Center through the use of a computerized model. A "Special Program to List Amplitudes of Surge from Hurricanes" (SPLASH) has resulted in expected surge levels for Category 1 through 5 storms making landfall on or near the Georgia coast.

Attachment 1 shows profile drawings and computations derived from the SPLASH model. Anticipated surge levels reflect the storm surge added to the astronomical high tide level.

It has been found that the maximum storm surge from a Category 1-4 storm will occur approximately 20 miles north of the point of landfall. Maximum surge from a Category 5 storm will occur approximately 12 miles north of the point of landfall. This is due to the compact nature of severe storms.

Gale force winds will occur several hours prior to landfall. SPLASH computations reflect the point at which such winds will begin. Evacuation should be complete before that time.

III. DIRECTION AND CONTROL

Legal Authorities

Legal authorities for implementation of this plan are set forth in the Chatham County EDOP.

Purpose and Scope

Specifically, the objectives of this plan are to:

1. Alert local officials and the general public.
2. Protect and save lives.
3. Coordinate response activities of local officials.
4. Provide for orderly evacuation of threatened areas.
5. Coordinate activities with inland host county officials and others involved in hurricane response.
6. Prevent or minimize damage to property.
7. Provide for the rapid recovery of the stricken area.

The Chatham County Hurricane Response Plan addresses hurricane preparedness, response and recovery in Chatham County. It has been prepared in accordance with the Georgia Natural Disaster Operations Plan (NDOP), Hurricane Evacuation Plan for Coastal Georgia and the Chatham-Savannah Emergency and Disaster Operations Plan (EDOP). It has been coordinated with adjacent county hurricane response plans, host county plans, and other state and federal agency plans which affect Chatham County.

Responsibility

This plan will be carried out in accordance with the Chatham-Savannah EDOP and resolutions of Chatham County and the City of Savannah.

Emergency Operating Conditions

The extent of response activities will directly relate to the intensity of the approaching storm. Early alerting of state and local officials and concerned agencies serving in an immediate or standby capacity is essential to evacuation operations. Information regarding warning or response actions contemplated or taken will be coordinated between the state and local governments affected. Increased readiness actions will be taken progressively (as the hurricane approaches and as the threat of injury or property damage increases) in accordance with Hurricane Operation Conditions (OPCON's) described as follows:

Hurricane Threat/National Weather Service (NWS) Action	Hurricane Condition	Preparedness/Response Activity
Hurricane season/NWS monitors development of tropical storms disturbances.	5	Day-to-day operations
Hurricane has developed or may be developing which could pose a threat of Georgia coast/ NWS issues Advisories at 6-hour intervals (intensity, location, direction and speed of movement, projected location).	4	Review Natural Disaster Operations Plan and Hurricane Evacuation Plans. Storm track and projection plotted.
Hurricane or tropical storm with hurricane potential may strike portion of Georgia coast within 24-36 hours/NWS issues Hurricane Watch for all or portion of Georgia coast. Intermediate Advisories may be issued at 2 or 3 hour intervals between scheduled advisories.	3	Activate appropriate portion(s) of Hurricane Response Plan. EOC activated.
Hurricane will probably strike an area of Georgia coast within 24 hours/NWS issues Hurricane Warning for all or a portion of Georgia coast. Advisories and intermediate advisories are supplemented by Local Statements. Action Statements issued by Savannah NWS Station (always after NWS advisories).	2	Mobilization of personnel and resources - maximum preparedness level.
Hurricane will probably stike specific area of Georgia coast within 12 hours/hurricane warning now narrowed to specific area.* Advisories and local action statements continue.	1	Full fledged emergency. Full implementation of Hurricane Response Plan.

*Erratic movement of some storms may delay warning for specific area to as little as 6 hours prior to landfall.

Increased Readiness Actions

The actions of governmental departments and volunteer groups with primary response roles in a storm are keyed to Operating Conditions and the storm's proximity. The "Readiness Actions Checklists" in Attachment 2 provide a guide for actions to be taken as the storm approaches. In some situations, actions may be taken prior to the suggested times indicated on the checklist. Response actions will depend on the severity of the storm and various other conditions such as the time of day and astronomical tide height.

Checklists for support groups are also included in Attachment 2.

Concept of Operations

The concept of operations is addressed in the Chatham-Savannah EDOP. This includes the make-up of EOC staff.

Coordination of Resources

City and County governments will utilize all available resources to meet the existing emergency. When local resources are determined to be inadequate, state or federal agency assistance may be requested.

The County Commission Chairman and the Mayor of Savannah have the authority by Resolution to solicit equipment or manpower within the scope of affected local governmental jurisdictions to meet such emergencies. Written agreements should be formed wherever possible to ensure the availability of resources.

Resources outside the realm of Chatham County and city governments will be addressed in each section of the plan. A summary of support services and providers is shown in Figure 2. For more detail, see the National Disaster Operations Plan.

FUNCTIONAL SUPPORT TO LOCAL GOVERNMENT ROLES AND RESPONSIBILITIES	Dept. of Administrative Services	Dept. of Agriculture	Dept. of Audits and Accounts	Building Authority	Bureau of Investigations	Dept. of Community Affairs	Comptroller General's Office	Department of Defense	Department of Education	Forestry Commission	Dept. of Human Resources	Dept. of Industry and Trade	Dept. of Labor	Dept. of Natural Resources	Offender Rehabilitation	Office of Planning & Budget	Dept. of Public Safety	Public Service Commission	Board of Regents	Dept. of Revenue	Dept. of Transportation	Veterans Service	Volunteers, Etc.*	Food and Drug Administration	U. S. Public Health Services	State Agency on Aging	U.S.Army Corps of Engineers						
Training/Education																																	
1. Public Information	X							X1																									
2. Training								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X											
3. Education		X				X		X	X		X						X					X											
4. Planning Assistance	X									X					X		X							X	X	X							
COMMUNICATION/WARNING	X				X			X	X	X						X	X	X	X	X		X											
INVENTORY OF RESOURCES/COORDINATION/EMERGENCY SERVICE																																	
1. Police Services	X				X			X		X				X	X		X		X	X	X											
2. Fire Services	X	X			X		X	X		X				X	X		X	X	X		X		X									
3. Search, Rescue and Recovery	X				X		X	X		X	X			X	X		X				X		X									
4. Engineering Services	X	X				X		X		X				X				X	X		X		X									
5. State Military Support								X																									
6. Fuel	X	X						X						X		X2	X	X	X		X		X									
7. Utilities	X	X						X						X		X2	X	X	X		X		X									
8. Procurement	X					X		X	X		X	X							X													
9. Coordination of Private Organizations/Volunteers	X					X		X	X		X		X	X				X	X		X		X									
EVACUATION/TRANSPORTATION/RE-ENTRY																																	
1. Evacuation					X	X		X	X	X	X			X			X	X	X		X		X									
2. Transportation	X							X	X	X	X			X			X	X	X		X		X			X						
SHELTERS	X				X			X	X		X			X					X		X	X	X									
CLEAN-UP																																	
RECOVERY OF SERVICES																																	
1. Disaster Assistance Operations Center	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X										
2. Damage Assessment and Reporting	X	X		X		X	X	X	X	X	X			X		X	X	X	X		X		X				X					
3. Health and Social Services	X	X		X		X3		X	X		X		X	X			X	X	X		X	X	X	X	X							
4. Temporary Housing	X					X		X	X		X			X					X		X	X	X									
5. Mortuary - Identification Services	X				X			X									X	X	X			X										
6. Public Property Assistance	X		X				X	X						X								X										
7. Insurance Administration	X			X			X	X						X								X										
8. Investigation	X		X		X		X	X		X				X			X															
9. Unemployment and Re-employment						X		X			X		X		X				X			X											
10. Timber removal and salvage	X	X				X		X		X			X		X				X		X												
11. Life support supplies															X											X							
12. Manpower for Clean-up										X					X																		

Footnotes:

(1) Office of the Governor; (2) Office of Energy Resources; (3) State Office of Housing

*To include private relief organizations (i.e. Red Cross, Salvation Army), private industry; professional associations and participants in mutual aide agreements.

Figure 2

IV. COMMUNICATIONS AND WARNING

Responsibility

In accordance with the Chatham-Savannah EDOP, it is the responsiblity of the Civil Defense Director to maintain the communication and warning system. The Chatham County Civil Defense is responsible for receipt and relay of the primary warning message.

Concept of Operations

The National Hurricane Center in Miami, Florida, gathers and interprets information about Atlantic tropical weather disturbances from many different sources. If a disturbance intensifies to tropical storm strength and appears to be headed toward land, the Center will begin to issue advisories. These may be picked up by news media and made available to the public. Occasional bulletins may also be issued to further amplify the routine information provided by the advisories. As the storm reaches hurricane strength and is headed toward the United States coastline a hurricane watch may be issued from the National Hurricane Center or one of several other offices located in San Juan, New Orleans, Washington and Boston. Once the area of hurricane landfall is more positively identified, and the storm is expected to come ashore in 24 hours, or less, a hurricane warning is issued. Areas of the coast for which such a warning has been issued may expect dangerous hurricane winds or storm surge to strike. As the storm comes very close to shore, the nearest National Weather Service (NWS) office may issue local statements. These are designed to provide specific information about the anticipated affects of the storm for individual counties.

Severe weather reports are received at the Civil Defense office in Savannah from the Savannah office of the National Weather Service (NWS). Information is broadcast over National Oceanic and Atmospheric Administration (NOAA) Weather wire.

Hurricane Bulletins are issued by the National Hurricane Center, with supplementary bulleting issued by NWS Savannah and NWS Atlanta. All bulletins are received via Weather Service Teletype by GEMA and relayed to Chatham County Civil Defense Headquarters via NAWAS and/or GEMA Radio Network.

In Chatham County, the message is recorded and sent via an electronic encoder/decoder system. City and county departments receive the recorded message via decoder units and relay the information to appropriate individuals by radio or telephone. See Figure 3. Other groups equipped with decoders are also shown in Figure 3. Telephone fan-out systems carry the warning to all schools and nursing homes (See Figures 4 and 5).

Intergovernmental communications at the county level are carried out via the county radio network. All county departments are equipped with radios includint the County Civil Defense. Mobile radio units as well as walkie-talkies facilitate the basic system.

City departments also maintain communication via a city radio network. Intergovernmental communication between city and county departments is achieved through city and county police networks and city and county fire department networks. Emergency Medical Service can communicate on both police and fire department radio frequencies.

-WARNING SYSTEM-

Encoder/Decoder Units

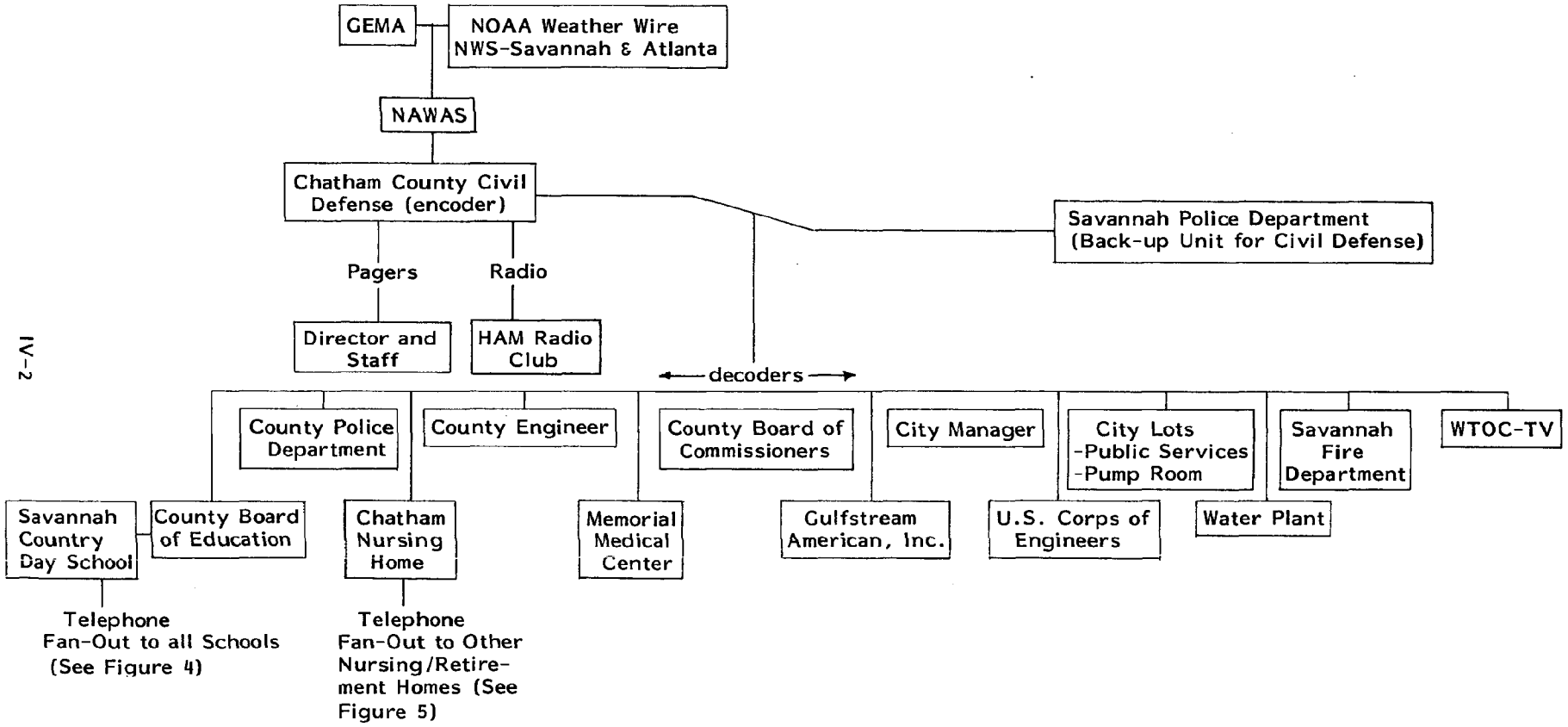


Figure 3

Figure 4

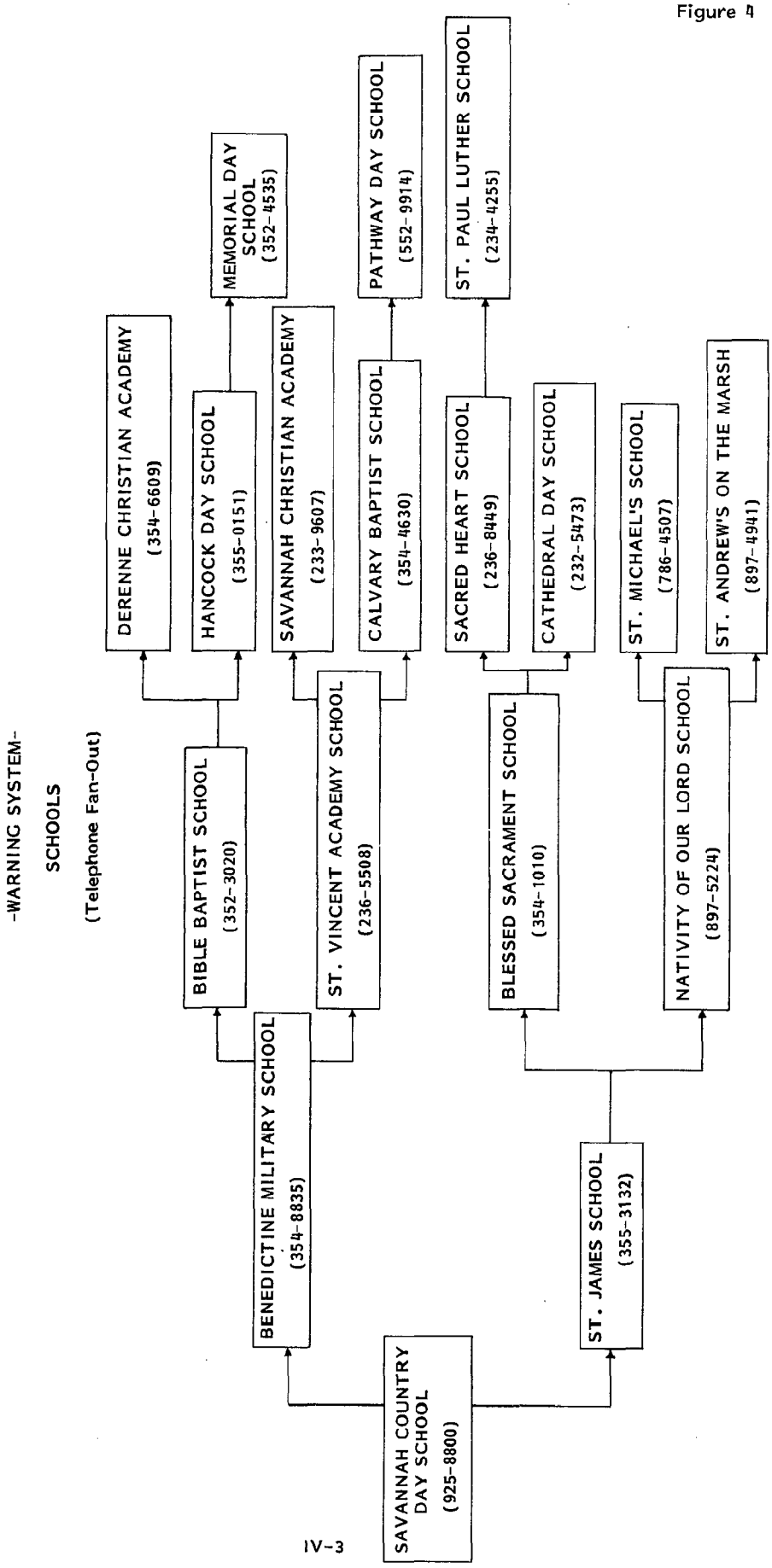
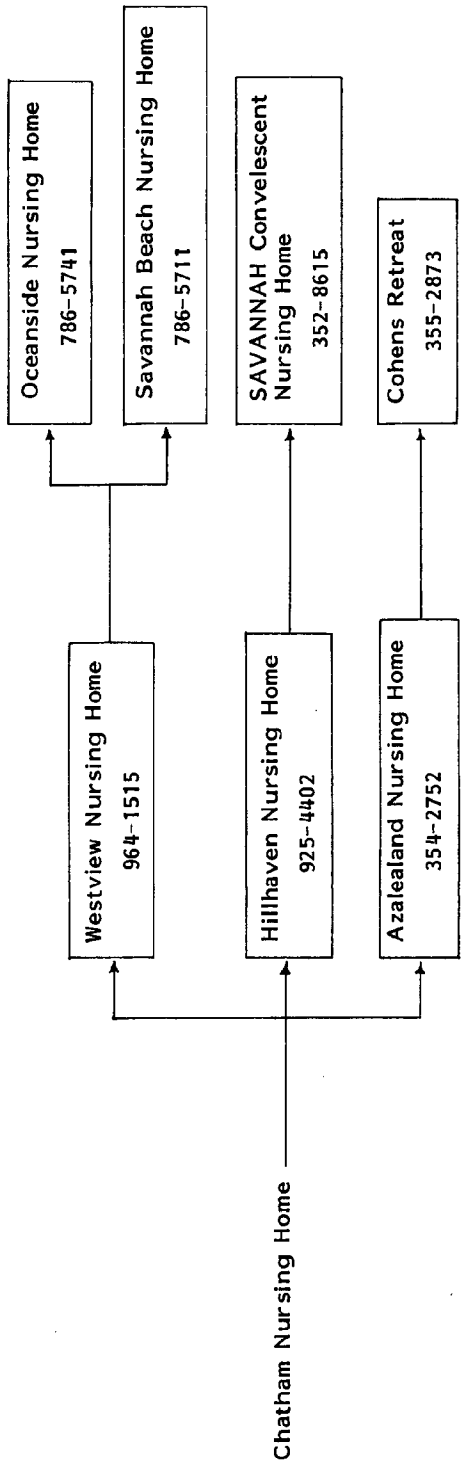

-WARNING SYSTEM-
SCHOOLS
(Telephone Fan-Out)
SAVANNAH COUNTRY DAY SCHOOL (925-8800)
BENEDICTINE MILITARY SCHOOL (354-8835)
ST. JAMES SCHOOL (355-3132)
BIBLE BAPTIST SCHOOL (352-3020)
ST. VINCENT ACADEMY SCHOOL (236-5508)
BLESSED SACRAMENT SCHOOL (354-1010)
NATIVITY OF OUR LORD SCHOOL (897-5224)
DERENNE CHRISTIAN ACADEMY (354-6609)
HANCOCK DAY SCHOOL (355-0151)
SAVANNAH CHRISTIAN ACADEMY (233-9607)
CALVARY BAPTIST SCHOOL (354-4630)
SACRED HEART SCHOOL (236-8449)
CATHEDRAL DAY SCHOOL (232-5473)
ST. MICHAEL'S SCHOOL (786-4507)
ST. ANDREW'S ON THE MARSH (897-4941)
MEMORIAL DAY SCHOOL (352-4535)
PATHWAY DAY SCHOOL (552-9914)
ST. PAUL LUTHER SCHOOL (234-4255)

Figure 5

WARNING SYSTEM

NURSING HOMES

(Telephone Fan-Out)



In the critical phases of evacuation, mobile communication units may be used to patrol residential areas. When evacuation is ordered, County and City police patrol units will use loudspeakers to encourage evacuation. The County and city police Departments also have the capability to patrol residential areas with verbal warnings. It is recommended that door-to-door warning be carried out by uniformed personnel to lend credence to the warning.

Activation of Warning Devices

1. Encoder/decoder system. The Civil Defense Director (or designated alternate) will transmit warnings received upon notification from GEMA or NWS.

2. EBS. Designated officials will activate by telephone contact with station WJCL or Savannah area stations.

3. Mobile public address. County and City police units will be dispatched upon notification of the Civil Defense Director and Police Chiefs.

4. Telephone. Commercial telephone will be used upon notification of the Civil Defense Director to augment the primary warning device. NAWAS will be activated only by GEMA, NWS and Civil Defense officials. A call list is maintained in the Civil Defense office.

5. Intergovernmental radio network. The county and city radio systems will be activated by designated operators to convey warnings to appropriate responders at the request of the Civil Defense.

Resources

Resources outside the jurisdiction of city and county government are available to facilitate communications, surveillance and warning. The GEMA has designated three state agencies to maintain a mobile communication network throughout the coast. (See the Hurricane Evacuation Plan for Coastal Georgia). The Department of Transportation (DOT) will assume mobile communication posts in Chatham County. The Georgia Forestry Commission will position foresters in the middle sector of the coast and the Department of Natural Resources will man the extreme southern sector of the coast. Each agency's unit chief will report the storm's progress and effects to the EOC in Jesup. Information will be communicated from Jesup to the Chatham County Civil Defense.

The Marine radio network (utilized by DNR, and U. S. Coast Guard) can provide warning information and help keep boaters informed in the early stages of the storm's approach. The network will also be used to facilitate search and rescue.

The Amateur Radio Club of Savannah can also serve as a valuable resource group to support communications during a hurricane threat. A listing of contact individuals is on file at the Civil Defense office as well as the Club's Standing Operating Procedure.

Increased Readiness Actions

Subsequent actions of each link in the warning system are included in Readiness Action Checklists in Attachment 2.

Base radio stations will be manned 24 hours daily whenever severe weather is expected (OPCON 3). Emergency generators are available at city and county police departments, County Public Works Department and the Board of Education. Additional generators can be acquired by the Civil Defense.

Interagency communication will continue to operate via normal radio channels until OPCON 2 becomes effective. At that point, the EOC will be fully manned with representatives of each response group. The EOC will become the central communication base for all groups as set forth in the Chatham-Savannah EDOP.

Communication with inland county Civil Defense offices will be achieved through the Civil Defense radio network, by telephone or the Sheriff's network.

Information will reach the general public via radio and television stations affecting the area. Advisories from the Hurricane Center are available to the media through the United Press International (UPI) and Associated Press (AP) wire service. Statements by local or state emergency management officials will reach the public in accordance with procedures set forth in the Chatham-Savannah EDOP and the Public Information section of this plan.

The Emergency Broadcast System (EBS) may be activated by the County Commission Chairman, Civil Defense Director, County Police Chief, Mayor of Savannah and the Savannah Police Chief. To activate the EBS, call:

- WJCL-TV 912/925-0022 in Savannah
- any radio station in Savannah (Attachment 3).

Pre-arranged authentication procedures are outlined in the Georgia Emergency Broadcast System Plan, Savannah, Georgia, EBS Operational Area 10. The EBS may also be activated by the Meteorologist in Charge, Savannah office of the NWS, for severe weather affecting the coastal area.

Warning Termination

A hurricane watch or warning will be terminated upon notification by the NWS and/or the GEMA.

Tests and Revision of the System

The Warning and Communications systems will be tested, evaluated and revised in accordance with the Chatham-Savannah EDOP.

In the critical phases of evacuation, mobile communication units may be used to patrol residential areas. When evacuation is ordered, County and City police patrol units will use loudspeakers to encourage evacuation. The County and city police Departments also have the capability to patrol residential areas with verbal warnings. It is recommended that door-to-door warning be carried out by uniformed personnel to lend credence to the warning.

Activation of Warning Devices

1. Encoder/decoder system. The Civil Defense Director (or designated alternate) will transmit warnings received upon notification from GEMA or NWS.

2. EBS. Designated officials will activate by telephone contact with station WJCL or Savannah area stations.

3. Mobile public address. County and City police units will be dispatched upon notification of the Civil Defense Director and Police Chiefs.

4. Telephone. Commercial telephone will be used upon notification of the Civil Defense Director to augment the primary warning device. NAWAS will be activated only by GEMA, NWS and Civil Defense officials. A call list is maintained in the Civil Defense office.

5. Intergovernmental radio network. The county and city radio systems will be activated by designated operators to convey warnings to appropriate responders at the request of the Civil Defense.

Resources

Resources outside the jurisdiction of city and county government are available to facilitate communications, surveillance and warning. The GEMA has designated three state agencies to maintain a mobile communication network throughout the coast. (See the Hurricane Evacuation Plan for Coastal Georgia). The Department of Transportation (DOT) will assume mobile communication posts in Chatham County. The Georgia Forestry Commission will position foresters in the middle sector of the coast and the Department of Natural Resources will man the extreme southern sector of the coast. Each agency's unit chief will report the storm's progress and effects to the EOC in Jesup. Information will be communicated from Jesup to the Chatham County Civil Defense.

The Marine radio network (utilized by DNR, and U. S. Coast Guard) can provide warning information and help keep boaters informed in the early stages of the storm's approach. The network will also be used to facilitate search and rescue.

The Amateur Radio Club of Savannah can also serve as a valuable resource group to support communications during a hurricane threat. A listing of contact individuals is on file at the Civil Defense office as well as the Club's Standing Operating Procedure.

Increased Readiness Actions

Subsequent actions of each link in the warning system are included in Readiness Action Checklists in Attachment 2.

Base radio stations will be manned 24 hours daily whenever severe weather is expected (OPCON 3). Emergency generators are available at city and county police departments, County Public Works Department and the Board of Education. Additional generators can be acquired by the Civil Defense.

Interagency communication will continue to operate via normal radio channels until OPCON 2 becomes effective. At that point, the EOC will be fully manned with representatives of each response group. The EOC will become the central communication base for all groups as set forth in the Chatham-Savannah EDOP.

Communication with inland county Civil Defense offices will be achieved through the Civil Defense radio network, by telephone or the Sheriff's network.

Information will reach the general public via radio and television stations affecting the area. Advisories from the Hurricane Center are available to the media through the United Press International (UPI) and Associated Press (AP) wire service. Statements by local or state emergency management officials will reach the public in accordance with procedures set forth in the Chatham-Savannah EDOP and the Public Information section of this plan.

The Emergency Broadcast System (EBS) may be activated by the County Commission Chairman, Civil Defense Director, County Police Chief, Mayor of Savannah and the Savannah Police Chief. To activate the EBS, call:

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Pre-arranged authentication procedures are outlined in the Georgia Emergency Broadcast System Plan, Savannah, Georgia, EBS Operational Area 10. The EBS may also be activated by the Meteorologist in Charge, Savannah office of the NWS, for severe weather affecting the coastal area.

Warning Termination

A hurricane watch or warning will be terminated upon notification by the NWS and/or the GEMA.

Tests and Revision of the System

The Warning and Communications systems will be tested, evaluated and revised in accordance with the Chatham-Savannah EDOP.

V. PUBLIC INFORMATION

Responsibility - It is the responsibility of the Civil Defense Director to provide emergency public information and act as chief spokesman in a hurricane event. A Public Information Officer (PIO) will assist under the direction of the Civil Defense Director. The County Commission Chairman and Mayors of incorporated cities will also provide public information in close coordination with the Civil Defense to ensure consistent information.

Concept of Operations

Public information will be disseminated to the news media based on the decisions of the direction and control group. Information will include evacuation, shelter and re-entry instruction.

Warnings to the public are disseminated through the news media (radio, T.V., and newspapers), National Weather Service bulletins, advisories and statements and the Georgia Emergency Management Agency (GEMA).

Upon announcement of an evacuation recommendation or order, the Civil Defense Director or PIO will notify radio and television stations, listed in Attachment 3. Information disseminated to the media will include:

1. Status of the storm, evacuation recommendation or order.
2. Identification of areas to be evacuated.
3. Routes to be used out of endangered areas.
4. Location of available shelters or reception sites locally or outside the county.
5. Instructions for obtaining transportation for those who need assistance.
6. Instructions about what to bring to public shelters (i.e. non-perishable food, bedding, clothing, medicines, infant formulas, special diet foods, personal items), and what not to bring (i.e. pets, alcoholic beverages, firearms).

Inquiries coming into the Civil Defense Office will be answered by the Director, PIO or a previously designated alternate spokesman.

GEMA Public Affairs personnel may also provide media releases in coordination with local officials.

General public information in Chatham County will also be disseminated by the Civil Defense in pre-hurricane stages to:

The SAVANNAH MORNING NEWS
P. O. Box 1088
Savannah, GA 31548

Attachment 8 includes "Family Survival Guidelines" and an evacuation map prepared for publication in newspapers. This packet can be used in pre-storm awareness campaigns, as well as in emergency public information during the days of the storm's approach.

Special preparedness information will be provided by the Civil Defense to special segments of the general population such as the:

1. Senior Citizens Centers and complexes, retirement homes and hospitals.
2. Schools

3. Boat Marinas
4. Hotels and Motels
5. Industries

Updated information about the storm's progress will be given via the news media, as long as radio and television stations maintain power. Communication will also be maintained with shelters via law enforcement officials patrolling the area or assigned to shelter sites.

After the storm has passed and all threats of danger are over, information will be provided to shelters via radio or verbal communication with re-entry instructions. In inland areas, radio and television will provide instructions to evacuees of coastal residences.

VI. EVACUATION AND RE-ENTRY

Responsibility. It is the responsibility of the Chatham County Commission Chairman and the Mayor of Savannah to initiate an evacuation recommendation or order.

Concept of Operations. Evacuation zones are delineated with regard to elevation and situation. (See Attachment 4). Zone 1 will receive priority evacuation. The land in Zone 1 is generally 0-5 feet above mean sea level and includes areas that are expected to be isolated by rising waters. Zone 1 contains approximately 39,575 people.[1]

Early evacuation should be encouraged for high risk areas within Zone 1 such as Tybee, Wilmington, Skidaway and Ossabaw Islands. It is anticipated that evacuation of islands with causeways would become impossible at least 5 hours before hurricane landfall due to flooding. Depending on the severity of the storm, high winds and heavy rain may make evacuation dangerous or impossible prior to that time.

Residents of Ossabaw Island would face difficulty much earlier due to rough waters.

The permanent population of the Islands with causeways is 12,072. An estimated 7,455 vehicles are expected to evacuate. It is further estimated that 4 to 8 hours will be required to move traffic from all three islands.

Though significant numbers of tourists visit the Savannah area during the summer months, the tourist population is not included in evacuation estimates. Due to the lack of sufficient data about types of transportation used by visitors, it is difficult to estimate increased traffic volume. The Georgia Department of Transportation assumes that, for planning purposes, visitors would leave in advance of mass evacuation. Chatham County officials would urge visitors to evacuate when a Hurricane Watch is issued.

Under an evacuation order, residents of Tybee Island, Wilmington Island, Thunderbolt, Skidaway Island, Isle of Hope, Vernonburg, Montgomery, Burroughs, and portions of the City of Savannah east of Wheaton and Skidaway Road will take the most direct route to U.S. Highway 80 to Statesboro, Georgia. Evacuation routes are also shown in Attachment 4. In the face of a minor storm (Category 1 or 2), residents will be instructed to move away from low-lying areas. Local shelters will be opened.

Upon recommendation, 34,034 residents can be expected to evacuate Zone 1. 18,315 vehicles are expected to evacuate Zone 1 with approximately 2.1 people per vehicle.[2]

[1]Source for all population figures: 1980 Census.

[2]Anticipated response was derived from a Hurricane Response Survey (Attachment 5) and the Chatham County Urban Transportation Study, 1979.

Under an evacuation order, 31,660 residents are expected to evacuate immediately with 15,076 vehicles. An additional 6,332 are expected to evacuate within 2 hours after the order with 3,015 vehicles. Approximately 396 people can be expected to remain in Zone 1 until conditions appear to be too severe to remain. A total of 38,388 can be expected to evacuate resulting in 18,280 vehicles evacuating Zone 1.

Approximately 14,204 residents are expected to seek public shelter. An estimated 1,278 residents would immediately seek shelter outside the County. 12,074 would go wherever instructed by local officials.

Approximately 156,065 people live in Evacuation Zone 2. The land in Zone 2 is generally at 10 feet above mean sea level and greater. Zone 2 (including the remainder of Savannah, Port Wentworth, Garden City and Windsor Forest) would receive second priority in evacuation.

Upon recommendation, 143,579 people are expected to evacuate Zone 2. With an average of 4.2 people per vehicle, 34,185 vehicles can be anticipated.

Approximately 146,701 people would evacuate Zone 2 immediately upon official order. An additional 6,243 people would evacuate within approximately 2 hours. 3,121 can be expected to stay until conditions are severe. 34,929 vehicles can be expected to evacuate initially. An additional 1,486 vehicles would evacuate within a few hours. In response to a major storm, all of Zone 2 is expected to evacuate. A total of 37,206 vehicles are expected to evacuate.

Upon evacuation order for Zone 2, 81,154 people can be expected to occupy shelters in Claxton, Lyons, Vidalia, Swainsboro, McRae and Dublin, Georgia. (See Hurricane Evacuation Plan for Coastal Georgia, 1981). Since all Chatham County shelters are located in Zone 2, occupants of local shelters will also be evacuated inland.

Evacuees of Zone 2 should travel inland on Interstate 16 to host cities.

The estimated 6,586 residents of Zone 3 (the area west of Interstate 95) will not evacuate unless a major storm threatens the area. Evacuees will take the most direct route to I-16 west to Dublin, Georgia.

The Georgia Department of Transportation has estimated that each lane of roadway will handle approximately 550 vehicles per hour under imperfect conditions.

Decisions regarding evacuation will be made in consultation with the Chatham County Civil Defense and the Georgia Emergency Management Agency based on information from the National Weather Service.

When the National Weather Service (NWS) issues an advisory indicating that a tropical disturbance is developing which may pose a threat to the Georgia coast, the Civil Defense staff will plot the storm and track its movement.

The GEMA Chief of Operations will dispatch a message declaring HURRICANE CONDITION 4 to Area 5 Field Coordinator (located in Brunswick) and to all local, state and federal agencies concerned. The Chatham County Director will communicate the message to all appropriate departments within local government. Increased readiness actions will be taken as described in the Action Checklist in Attachment 2.

At OPCON 3 (24 to 36 hours prior to arrival of the eye of the storm), the Civil Defense Director will encourage evacuation of nursing homes, jails and other dependent populations. Mass transportation for concentrations of dependent populations may be provided by the Chatham County Department of Education and the National Defense Transportation Association. Several public housing complexes are occupied primarily by elderly citizens and may require special attention. They are listed below with estimated numbers of residents requiring transportation.

Fellwood Homes 1300 Bay Street Savannah, Ga. (912) 232-2256	60 residents
Frazier Homes 805 May Street Savannah, Ga. (912) 233-6614	70 residents
Stillwell Towers 5100 Waters Avenue Savannah, Ga. (912) 352-7470	175 residents
Stubbs Towers 1301 Bee Road Savannah, Ga. (912) 233-0058	150 residents
Yamacraw Village 349 West Bryan Street Savannah, Ga. (912) 232-2724	300 residents
Rose of Sharon Apartments 322 East Taylor Street Savannah, Ga. (912) 234-5417	200 residents

In addition to these concentrated groups, there are many others in Chatham County who would require assistance. An estimated 30,000 residents, in total, are expected to require transportation assistance. The National Defense Transportation Association, in cooperation with the Civil Defense is prepared to dispatch 425 mass transit vehicles to transport dependent populations to public shelters.

Public awareness campaigns should anticipate such needs and provide adequate information.

When evacuation begins or is expected, the Civil Defense Director will advise the State EOC. He will also advise Civil Defense Directors in appropriate host counties to facilitate preparation of shelters.

Notification will be given when recommendations and orders to evacuate are issued. Notification will also be given prior to evacuation of each Zone.

Also at OPCON 3, the Civil Defense Director will recommend voluntary evacuation of low-lying areas (Zone 1) and mobile homes. Information will be broadcast on local radio and television stations regarding shelter openings. If the storm appears to be major, local shelters will not open. Voluntary evacuees desiring public shelter will be instructed to relocate in host cities outside Chatham County.

Campers and tourists will be asked to leave the area. Vehicles vulnerable to high winds should make plans to be out of the area before mass evacuation begins. This includes recreational vehicles, boats and small planes.

City and County Police Departments will control traffic and establish road blocks in accordance with the EDOP. Both departments have Standing Operating Procedures (SOPs). SOPs define assignments, road check points and maintain a current listing of equipment and supplies.

SOPs of city and county police will be coordinated to allow smooth traffic flow across county/city jurisdictional limits. Georgia State Patrol checkpoints west of the city will also be coordinated with local law enforcement efforts. Consultation with law enforcement branches several hours prior to the recommendation will help local police in establishing necessary units where traffic congestion may occur. Advance consultations will also allow law enforcement officers to make shelter arrangements for their families.

Law enforcement officials will establish traffic control points, assign personnel and arrange for placement of road blocks. Coordination of city and county public works departments will be maintained. Public works will assist in placing road blocks under direction of local police.

County and city Fire Department and Rescue Squad personnel will be on stand-by alert at OPCON 3. They will support evacuation efforts as requested in addition to normal fire and rescue services. (See Chatham-Savannah EDOP). Representatives will be placed in the EOC.

At OPCON 2, 24 hours before arrival of the storm, evacuation will be strongly urged or mandated depending on the severity of the storm. When evacuation is mandated, the first priority in evacuation will be the off shore islands, low-lying areas, mobile home parks, nursing homes, jails, and all dependent populations.

An evacuation order should be issued in time to allow completion during daylight hours. Evacuation after nightfall will become dangerous due to heavy rain, wind and human reaction to the urgency of the situation. Stalled vehicles and traffic accidents will become a greater hazard and are more likely to choke evacuation routes.

When evacuation is ordered, police forces will be dispatched with loudspeakers wherever possible, to manually warn remaining residents. County and city police will remain in the area to control traffic and assist evacuees only as long as it is practical and safe.

Law enforcement units should prepare for mandated evacuation should the storm warrant such action. Road blocks should be ready for actual placement and traffic control points established. Additional law enforcement personnel may be required to control traffic. Provisions should be made to acquire such support in the event it is needed. Additional support in placing road blocks may be secured from the Department of Transportation and should be requested through the EOC and GEMA Area 5 Field Coordinator.

A decision will be made in consultation with the Chatham County Civil Defense Director, Area 5 Field Coordinator and local police regarding limited movement back into threatened areas.

State and Federal Agency support elements will not enter storm area ahead of the storm unless directed to do so by the State Disaster Coordinator/State Director of GEMA or Area Field Coordinator. The Chatham County Director should maintain liaison with state and federal agencies within the county i.e. DOT, DNR, Coast Guard to ensure support as it becomes necessary.

At OPCON, 1, 12 hours or less before expected arrival of the storm, an evacuation order will be issued for areas which have not been evacuated. Evacuation of off-shore islands should be completed. In the event of a major storm, evacuation will be mandated for the mainland portion of Zone 1 and Zone 2. If the storm is extremely dangerous (Category 4 or 5), Zone 3 will also be evacuated. It is important that emergency public information convey expected conditions in order to discourage those who believe they can ride the storm out. A deadline will be determined by local officials and the Field Coordinator for two-way traffic permitted to and from danger areas. This deadline will be broadcast over coastal radio stations at least 12 hours before the expected high water that can cut off evacuation routes. After the deadline decision has been announced, only one-way traffic will be permitted <u>from all danger areas</u>.

Readiness actions at each OPCON are summarized in the Actions Checklist in Attachment 2.

Re-entry

Members of the Control Group and their designees will be the first local officials to enter the area. If evacuation was mandated, state and local law enforcement officers will prevent anyone from re-entry unless they are properly identified. GEMA officials will be the first state agency representatives to re-enter the affected area.

If an evacuation recommendation resulted in only partial evacuation of low-lying areas, those areas will be sealed off by local law enforcement officers. No one will be allowed into the area until official notification is given by the County Commission Chairman/Mayor of Savannah or the Civil Defense Director. Thus, all appropriate law enforcement groups must be notified when re-entry is to begin and proper identification supplied.

Public information will be supplied to evacuees when it is safe to return. Shelter occupants may receive information via radio stations in the area or through messages delivered to the shelter by area officials. Evacuees occupying motels or the homes of friends or relatives must rely on the news media for communications. Telephone communications will likely be inoperable. Precautionary measures and safety tips should be widely publicized for those returning to the affected area. Fliers should be printed in advance and made available in public shelters to tell coastal residents what to expect when they return to the stricken area and how they can protect themselves from injury or illness due to contaminated food and water supplies.

VII. Shelters

Responsibility. It is the joint responsibility of the Chatham County Civil Defense Director and the Savannah Red Cross Chapter to identify short term shelters for use during a hurricane. The Red Cross will open shelters in coordination with the Civil Defense and provide shelter staff.

Concept of Operations. Attachment 6 shows a listing of shelters within Chatham County, the capacity and elevation. Shelter managers and alternate managers are identified.

Shelters should be designated through a joint effort of the County Civil Defense, American Red Cross (ARC) Chapter and owners/managers of prospective shelters.

Written agreements with ownership entities should be made approving use of shelter sites. Portions of the shelter site available for occupancy and facilities available for use should also be identified. Accomodations for occupants with special needs should be noted. If space is available, it is preferable to provide separate rooms or areas for those with special medical needs, the elderly, and families with infants. Capacity, facilities, elevation and capability of the structure to withstand high winds should be prime considerations in identifying shelters. A structural survey of the building is recommended when possible.

Local shelters expected to be used as refuge sites must be chosen with several considerations in mind. Elevation and structural capability to withstand hurricane force winds are most critical.

Refuge sites will be identified for use as shelters only as a last resort to house last minute evacuees who cannot reach designated safe shelter inland. (This in no way should be interpreted to mean that local officials endorse public reluctance to evacuate. Refuge sites may provide minimal protection in a life or death situation. Local officials cannot be responsible for the safety of those who refuse to evacuate.)

Pre-season planning should begin with a cooperative effort between the Red Cross Chapter, Civil Defense and the assigned shelter manager to formulate a plan for each shelter. Plans should include an inventory of the shelter facility to determine what supplies and equipment will be necessary to house the expected number of occupants. Shelters should be equipped with:

EQUIPMENT:	Chairs, brooms, drinking cups, gas operated stoves, trash cans, loudspeakers, tables, and emergency equipment such as battery operated lamps, flashlights, generators (if available), transistor radios, extra batteries and chemically activated light sticks.
SHELTER SUPPLIES:	Cleaning items such as detergent, soap, paper towels, toilet paper, disposable diapers, sanitary items, first aid kits, plastic garbage bags, candles and matches.
OFFICE SUPPLIES:	Registration forms, disaster forms, folders, paper, paper clips, pencils and a stapler.

Shelter staff should be established to include:

1) manager
2) medical/social service provider
3) receptionist to register occupants
4) food coordinator
5) janitor
6) maintenance person

Key staff members should have alternates. Individuals volunteering for shelter staff duty should make early arrangements to shelter their own families.

Assistance in staffing the shelter can also be solicited from the occupants. Red Cross will provide shelter staff upon notification and request, however, community resources should be utilized.

At OPCON 4 (when a disturbance may cause a potential hurricane threat), the Red Cross Chapter Disaster Chairman will make contact with Division ARC Headquarters. The Chairman will begin checking local plans and facilities to ensure the availability of staff and life support needs.

At OPCON 3, the Savannah Chapter, Disaster Chairman will be present in the EOC. The Chairman will maintain communication with the Division ARC office in Atlanta to request assistance if necessary.

The Disaster Chairman will notify appropriate shelter managers to open and staff necessary sites. Shelter Managers will be responsible to notify shelter staff. See Figure 5.

Shelters will begin opening at OPCON 3 or prior to that time (during a minor storm) to house voluntary evacuees of low-lying areas. In a major storm situation, local shelters will not be opened except as refuge sites to house stragglers. A major storm will necessitate total evacuation of the entire coastal area to inland counties.

It is anticipated that approximately 12,074 residents of Evacuation Zone 1 will seek shelter space in Chatham County, if it is available. Occupancy of County shelters will, of course, depend on the severity of the storm and instructions given to the public. In addition to Zone 1 evacuees, residents of Zone 2 areas near low-lying areas may also seek local shelter.

Approximately 9,267 shelter spaces have been identified in Chatham County. When local shelters have reached capacity, evacuees will be instructed to find shelter in inland counties.

Medical and Social Services. Medical services within shelters should be provided primarily by the Chatham County Health Department through the use of public health nurses. Resources for medical response teams consist of the following:

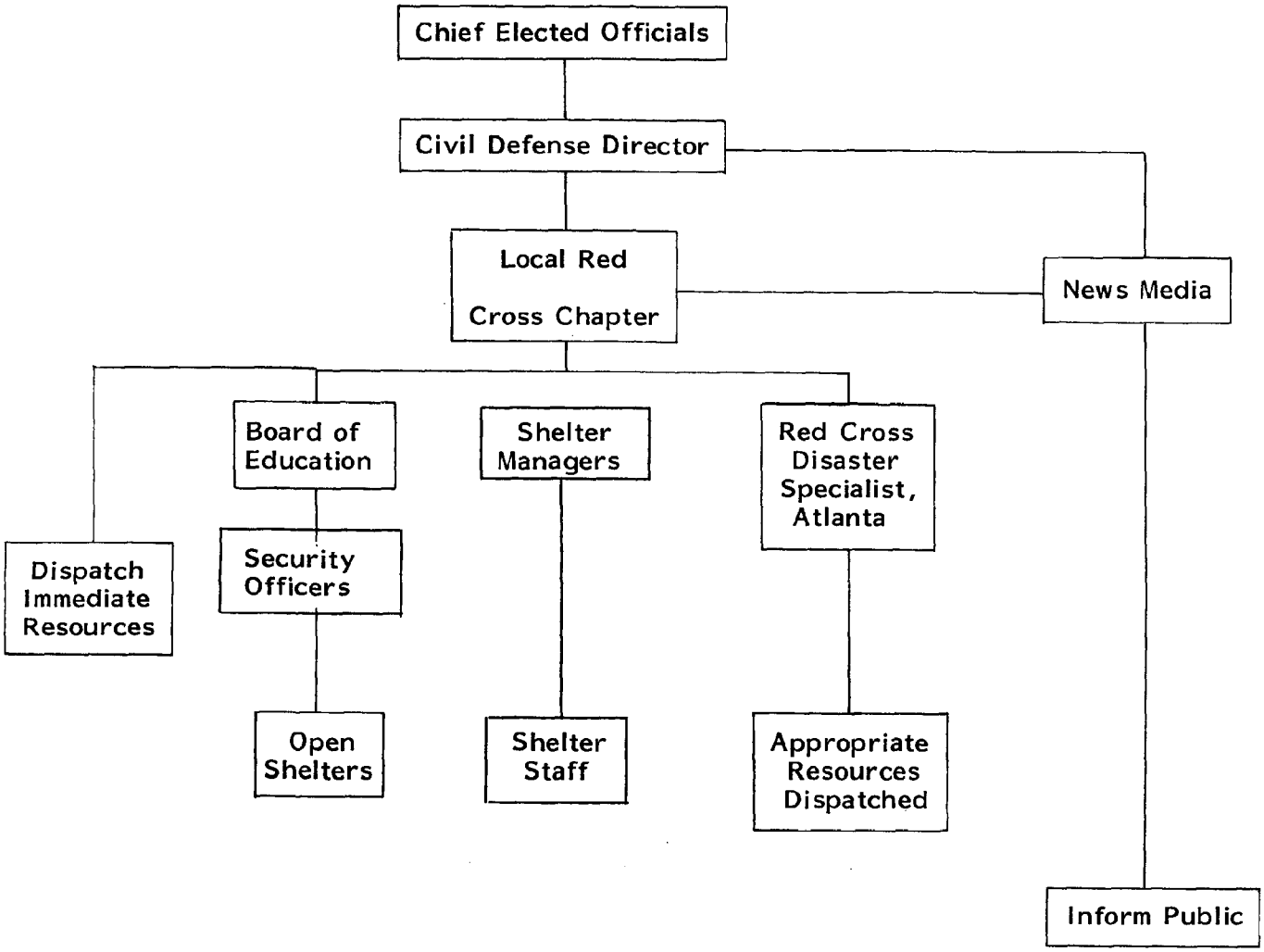
1. Chatham County Health Department (264-3961)

   Public health nurses should be requested to serve in public shelters through the use of the "call list" available at the Red Cross offices. The Hospital and County Health Department should be prime providers of medical kits containing first aid supplies. Surgical supply companies may provide assistance. Medications will not be available in public shelters.

Figure 6

NOTIFICATION SYSTEM FOR

SHELTER OPENINGS



Social services can be provided in public shelters by:

1. Department of Human Resources
   Department of Family & Children Services (DFCS)
   County Office - 356-2108
   Mental Health Center - 356-2436

2. Local ministerial association - individual ministers can be contacted to identify those able to assist. A roster of volunteers should be attached to this plan.

Registration

The American Red Cross recommends that the following registration information be taken from shelter occupants:

1. Family's last name and first and middle names of head of household and spouse (including wife's maiden name).
2. Children's names
3. Ages of family members
4. Any health problems
5. Pre-disaster address
6. Date arrived in shelter
7. Date departed
8. Post-disaster address

The Savannah Chapter will provide registration forms in the shelters requesting the information listed above.

It may also be desirable to inquire about special skills of shelter occupants in the event that volunteers are needed to act as additional staff. Red Cross will provide a receptionist for shelter assignment upon request. Department of Family and Children Services or volunteers in the shelters may also perform the function of receptionist.

Care and Feeding

The general public will have been instructed to bring special food items to the shelter. Red Cross will make arrangements for refreshments to be served in the shelter. A snack should be provided as soon as possible after the shelter becomes occupied. This will assure occupants that their needs are being taken care of and create a calm atmosphere. Arrangements for mass feeding at each shelter should be made in preparatory stages.

The School Food Service Manager or designated person will keep an accurate record of ALL food and/or supplies used from the School Food Service Inventory. The manager will also coordinate and/or supervise the food planning, preparation and service in the designated school, if requested by the American Red Cross Director or REACT Team personnel.

"Cafeteria" staff should be established by the food coordinator or shelter manager. Staff should include individuals experienced in mass food preparation and serving such as school food service personnel, church groups, home economists, restaurant workers/managers, etc. Such individuals can help plan menus and assist in locating food sources as well as equipment and supplies for preparation and serving.

Twenty-four hour restaurants and fast-food outlets should be considered for initial food and beverage provision.

The shelter should be surveyed before it is occupied for several reasons: 1) to determine supplies that will require replacement after the shelter is no longer needed; 2) to assess additional supplies and equipment needed.

The community should be informally surveyed to locate, in advance, providers of services of supplies i.e., private eating establishments, wholesalers, cold-storage plants, ice plants, refrigeration units, auxiliary sources for cooking.

Telephones in shelters should be reserved for requesting emergency assistance and supplies. They should not be used by occupants unless absolutely necessary.

Fire protection should also be provided. Shelter staff should be aware of the location of fire extinguishers on the premises. Law enforcement officers patroling the area can provide support in requesting emergency services if necessary.

Maintenance and Security

A maintenance person who is familiar with the shelter facility should be on the site to take care of minor repairs/problems. A janitor or staff of volunteers should be identified to keep the shelter clean. A sanitary facility will be necessary for health reasons as well as for psychological well-being.

The Security Department of the Board of Education will furnish one Security Officer per shelter for protection and control. The Security Officer will follow instructions given to him by the Shelter Commander. The Security Department will also furnish the American Red Cross Director a detailed copy of the Security Disaster Plan, describing duties and responsibilities of the Security Department. Security has five (5) mobile radio units, three portable radios (3) and one base station for communications.

Shelter Closing

Shelters may be closed upon notification of the Civil Defense Director that it is safe for occupants to return home.

The Red Cross Coordinator shall then notify respective shelter managers who will, in turn, give appropriate instructions to shelter staff.

The shelter manager will be responsible to return all borrowed property and equipment to the owner in a reasonable length of time. Receipt for return may be desirable. All records and receipts of food or supplies acquired shall be submitted to the shelter manager. A written inventory of supplies and equipment at the site shall be made after the shelter is unoccupied.

The shelter manager will provide all records to the Red Cross Chapter. The shelter site shall be cleaned up and returned to its normal state. The shelter manager shall be responsible to locate staff to assist with clean-up.

VIII. CLEAN-UP AND RECOVERY

Responsibility

It is the responsibility of the Chatham County Commission Chairman and Mayor of Savannah to:

1. Make the initial damage assessment to identify priority areas for clean-up activities.

2. Dispatch a financial loss assessment team in cooperation with GEMA and determine need for disaster declaration.

3. Dispatch clean-up crews.

4. Coordinate with appropriate federal and state agencies and private utility companies in damage assessment and clean-up.

Concept of Operations

Depending on the magnitude of the storm, one of two scenarios can be expected. The disaster may be undeclared or declared. Each situation will require a somewhat different approach.

During an undeclared disaster situation, local elected officials will be expected to take the lead role in assessment and recovery. If the disaster is declared by the federal and/or state government, local officials will support and coordinate with lead state and federal agencies.

In either situation, the initial damage assessment will be made by local officials with assistance from GEMA. Members of the assessment team will include local chief elected officials and the county Civil Defense Director. The purpose of the initial assessment will be to determine the extent of damage, need for assistance, and to help establish priority areas for clean-up.

Financial loss assessment teams will then be dispatched to survey damaged areas. This will result in dollar estimates as well as specific assignments for clean-up crews.

Damage assessment teams should be formed in pre-emergency stages in accordance with the Chatham County EDOP. Names, phone numbers and alternates should be available to the control group (Attachment 7). Briefings and training sessions should be held, at least annually, with team members outlining responsibilities and procedures.

In an undeclared emergency, damage assessment teams will be made up primarily of local representatives. Local government will be expected to take the lead role in reporting financial losses with support from the GEMA. By tasking a variety of state agencies in respective areas of expertise, GEMA maintains the capability to supplement local damage assessment teams. Local representatives, familiar with

the locality, can provide information about property values and local problems while state agencies can provide technical expertise that may not be available at the local level. Thus, an interagency team is most effective.

Other public and private agencies will dispatch damage assessments teams concurrently with local government and GEMA efforts. The Department of Transportation (DOT) will assume responsibility for state and federal road systems. The Department of Natural Resources (DNR) will assess damage to DNR property in the county. The Department of Human Resources (DHR) will be responsible for assessment of damage to DHR facilities.

The Department of Community Affairs, (DCA) will not undertake damage assessment efforts unless requested by local officials through GEMA. DCA does, however, have the expertise to assist in assessing financial loss to public property. This would include structures as well as water and sewer facilities. DCA also has the capability to assist in the assessment of damage to residential structures. Coordination should be maintained with local insurance agents who will be assessing private property losses.

The Savannah District Corps of Engineers will also dispatch damage assessment teams independently from local government. The purpose is to provide a cross check in determining financial losses. Reports will be forwarded to FEMA and GEMA. Assessment will include public and private property.

Utility companies will also dispatch damage assessment teams to determine priority areas for clean-up as well as to prepare financial reports. Close coordination will be maintained between all groups involved for maximum efficiency.

Documentation of the damage sustained is vital. Photographs should be taken before any clean-up efforts take place if at all possible. Records should be maintained reflecting all hurricane response activities/expenditures. This includes overtime spent by city/county employees, and supplies/equipment rented or purchased. Initial damage assessments may not indicate the need for a declaration. If subsequent reports indicate the need for a declaration, detailed records will prove invaluable.

Appropriate forms and procedures are outlined in the Chatham County EDOP.

Additional procedural guidance is provided in FEMA publications Federal Disaster Assistance Program, Handbook for Applicants, DR&R-1, March, 1981 and Documenting Disaster Damage, 1981.

During a declared disaster, the State and/or Federal Emergency Management Agency (FEMA) will take the lead role in damage assessment. The teams will become a combination of federal, state and local participation. Local government should be prepared to designate individuals to be a part of those teams. All local representatives expected to participate in damage assessment and reporting should be trained. Such training is available from GEMA, FEMA and the Corps of Engineers.

In accordance with the Hurricane Evacuation Plan for Coastal Georgia, debris removal will be the first priority in recovery efforts. Priority arterial streets and roads should be designated in the planning stages and mapped out. Priorities may be re-ordered as the situation dictates. Movement of emergency vehicles and restoration teams will be prime consideration in clearing transportation routes. Chief officials and the Civil Defense Director will make decisions for specific recovery priorities.

Communications restoration will also be a priority in recovery efforts. The need to disseminate emergency public information in the aftermath will be critical. Radio and television stations in unaffected areas housing evacuees will be the primary means of communicating with the public. The primary local warning stations should receive priority consideration in restoring power, if feasible. An alternate priority should be identified in order to restore communication with the public as quickly as possible. Newspapers in unaffected areas may be an alternate method of providing public information.

When the damage has been properly assessed and documented, clean-up efforts will begin. Essential work forces will begin moving back into the affected area from host areas.

Provisions must be made to maintain communication between damage assessment and clean-up teams. Mobile communications may provide adequate relay service supplemented by hand held radios. Amateur radio operations should also be utilized in communication networks in the immediate recovery environment. (See Hurricane Evacuation Plan for Coastal Georgia, pp. 25-26).

ATTACHMENT ONE

STORM SURGE DATA

ATTACHMENT I

Storm Surge Data

List of Plates

Plate No.	Name
1	Landfalling Storm Category 1
2	Landfalling Storm Category 2
3.	Landfalling Storm Category 3
4.	Landfalling Storm Category 4
5.	Landfalling Storm Category 5
6	Paralleling Storm, 15 miles Inland, Category 1-3
7	Paralleling Storm, Shoreline, Category 1-3
8.	Paralleling Storm, 15 miles at Sea, Category 1-3
9	Paralleling Storm, 30 miles at Sea, Category 1-3
10	Paralleling Storm, 45 miles at Sea, Category 1-4

Data provided by National Hurricane Center;
Analysis provided by Floodplain Management Services Branch,
Savannah District Corps of Engineers

HURRICANE ANALYSIS

In planning for emergency evacuation, it is necessary to determine the magnitude and timing of the potential hurricane hazards. The Savannah District Corps of Engineers requested the National Hurricane Center (NHC) to generate the data for the hazard analysis. The NHC staff selected the parameters for all the hypothetical hurricanes considered and generated the hazard analysis data. Flood Plain Management Services Branch, Savannah District, extracted and interpreted the data needed for evacuation planning.

The analysis of the hypothetical hurricanes was based on five levels of hurricane occurrences and on two types of storm movement.

The five levels of occurrences are correlated to the five categories of storm intensity on the Saffir/Simpson Hurricane Scale. The scale is used by the National Weather Service to give public safety officials a continuing assessment of the potential for wind and storm surge damage from a hurricane in progress.

The Saffir/Simpson Hurricane Scale ranges for atmospheric pressure, winds and surge heights at the coastline are as follows:

SCALE NO. (Category)	CENTRAL PRESSURE (Inches Mercury)	WINDS (MPH)	SURGE * (feet)
1	>28.94	74-95	4-5
2	28.50-28.93	96-110	6-8
3	27.89-28.49	111-130	9-12
4	27.18-27.88	131-155	13-18
5	<27.17	>155	>18

The two types of storm movement examined are landfalling and paralleling. Another type of storm movement - the exiting storm - was not considered because it was determined that by the time a hurricane reached the Georgia Coast from an overland direction, the potential hazards are minimal.

The principle tool available to analyze the expected hazard from potential hurricanes is the Sea, Lake and Overland Surges from Hurricanes (SLOSH) numerical storm surge prediction model[1] and the Special Program to List the Amplitudes of Surges from Hurricanes (SPLASH) numerical storm surge prediction model.[2] Both the SPLASH and SLOSH computerized models are able

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[1]Chester P. Jelesnianski, "Sheared Coordinate System for Storm Surge Equations of Motion with a Mildly Curved Coast." NOAA Technical Memorandum, NWS TDL-#61.

C.P. Jelesnianski, and J. Chen, "SLOSH (Sea, Lake and Overland Surges from Hurricanes)," National Oceanic and Atmospheric Administration, Technical Development Lab.

[2]Chester P. Jelesnianski, "Numerical Computations of Storm Surges with Bottom Stress," Monthly Weather Review, Vol. 95, No. 11, pp. 740-756.

Chester P. Jelesnianski, "SPLASH (Special Program to List the Amplitudes of Surges from Hurricanes), Part I-Landfall Storms," NOAA Technical Memorandum, NWS TDL-#46.
Ibid., Part 11 "General Track and Varient Storm Conditions" #52

*Peak surges presented are for the Georgia coast.

to predict the tidal surge heights that results from hypothetical hurricanes with selected various combinations of pressure, size, forward speed, track, and winds.

The SPLASH model predicts the height and duration of open coastline storm surge heights created by an approaching and landfalling hurricane. The model may be applied to any segment of Gulf or Atlantic coast; however, it assumes a generalized smooth coastline which does not consider the amplification of the surge by a bay or estuary.

The SLOSH model is based on the same general storm surge dynamics of the SPLASH model. However, SLOSH was developed to predict the surge action resulting from the hurricane's path through an area with a distinctly irregular coastline including a bay, major estuary, or large lake. The sophisticated model must be developed for each specific geographic coastal area individually, incorporating the unique local bay and river configurations, water depths, bridges, road, and other physical features. In addition to open coastline heights, one of the most valuable outputs of the SLOSH model for evacuation planning is its predictions of surge heights over land, thus predicting the degree of propagation or run-up of the surge into inland areas.

Because of the complexity and cost of the SLOSH model for a specific area, NHC has established a near-future priority list for developing the models. Unfortunately, coastal Georgia is not included in their priority listing for several years to come. There are other models available in the private sector which could be used to develop the inland routing data; however neither Savannah District FPMS funds nor funds available to the Coastal Area Planning and Development Commission are sufficient at this time to contract for the necessary modeling services. Therefore, it is necessary at this time to rely on the SPLASH Model data.

Input Parameters

The hypothetical hurricanes that were simulated were composed of parameters that were determined to be meteorologically probable to approach the Georgia Coast. This determination included the two parameters of storm size and landfall/approach angle of track.

The Input parameters used to compose each hypothetical hurricane is shown in Table 1.

The track of a hurricane is significant when determining the hazard effects. Based on experience and meteorological probability, two basic track conditions were chosen: (1) landfalling storms approaching from a direction perpendicular to the Coast, and (2) storms paralleling the coast. The landfalling storm tracks were chosen at 10 mile intervals along and normal (90°) to a smoothed coast line. These tracks are shown on Figure A. The paralleling storm tracks were at 15 miles inland of the smoothed shoreline, directly on the shoreline, and 15, 30, and 45 miles seaward of the shoreline. These tracks are shown on Figure B. Because hurricanes lose strength rapidly when they touch land, data for paralleling storms was developed only for categories 1 through 3 out to 30

miles off shore. Table 2 gives a summary of chosen tracks and categories.

Past experience with hurricanes indicates that the more intense the hurricane, the more compact it is, and therefore, the radius of maximum winds is less. The significant break point in this occurs between the category 4 and 5 levels and accounts for the lower radius of maximum winds shown in Table 2 for category 5.

TABLE 1

INPUT PARAMETERS FOR
HYPOTHETICAL HURRICANES

Parameter	SAFFIR/SIMPSON SCALE CATEGORY 1	2	3	4	5
Barometric Pressure Drop (Millibars)	30	40	60	80	100
Storm Size (Radius of maximum winds in statute miles)	20	20	20	20	12
Forward Speed (Miles per Hour)	12	12	12	12	12

TABLE 2

SELECTED STORM TRACKS AND CATEGORIES

TRACK	CATEGORY
Landfalling (10 mile intervals)	1, 2, 3, 4, 5
Paralleling	
15 miles west of shoreline	1, 2, 3
Shoreline	1, 2, 3
15 miles east of shoreline	1, 2, 3
30 miles east of shoreline	1, 2, 3
45 miles east of shoreline	1, 2, 3, 4

Output Analysis

The output of the SPLASH Model provides three major types of data on the effects of the simulated hurricane on the Georgia Coast. They are as follows:

- Surge heights above mean sea level
- Computed wind speeds by times and locations
- Wind directions

This data is computed, analyzed, and presented for the immediate open shoreline and can be used only as an indication of what happens inland of the shoreline.

An analysis of the computed data for landfalling hurricanes is shown in Table 3 and for paralleling hurricanes in Table 4. Peak surge curves for the various storm categories and tracks are shown on Plates 1 through 6. Copies of the SPLASH computer Model outputs are available in Flood Plain Management Services Branch, Savannah District.

The peak surges as computed in the SPLASH Model are based on a depth of water above mean sea level. Since the tide range along the Georgia Coast is so great, we find it necessary to add the difference between high tide and mean sea level to the storm surge depths so that we can know the maximum effect of the storm surge. Of course, an actual storm may landfall on a tide height other than full high. The high tide depth above mean sea level used in this analyses is about 3.9 feet at Savannah River entrance, 3.5 feet at St. Simons Island sound, and 3.0 feet at the St. Johns River entrance.

Peak surges along the Georgia Coast do not match the potential surges outlined in the Saffir/Simpson Hurricane Scale. This difference is due to the high shoaling factor (shallow water) along the Georgia Coast.

The Saffir/Simpson Scale describes the degree of hazard and damage potential generally associated with the full range of hurricane intensities. However, the height of the storm surge is ultimately determined by not only the parameters of the hurricane itself, but also the characteristics of the land mass that it approaches. Such characteristics include bathymetric configuration and slope coastline configuration, and local atronomical tides. The Saffir/Simpson Scale is a universal scale adopted by the NHC to describe the expected hazards anywhere along the Gulf or Atlantic coast. The surge height ranges listed for its categories are those to be expected in a "standard basin" or average coastal region among the entire Gulf and Atlantic coasts. Therefore, any unique local land mass characteristics are naturally not considered in determining the surge height ranges listed as resulting from a specific category of hurricane.

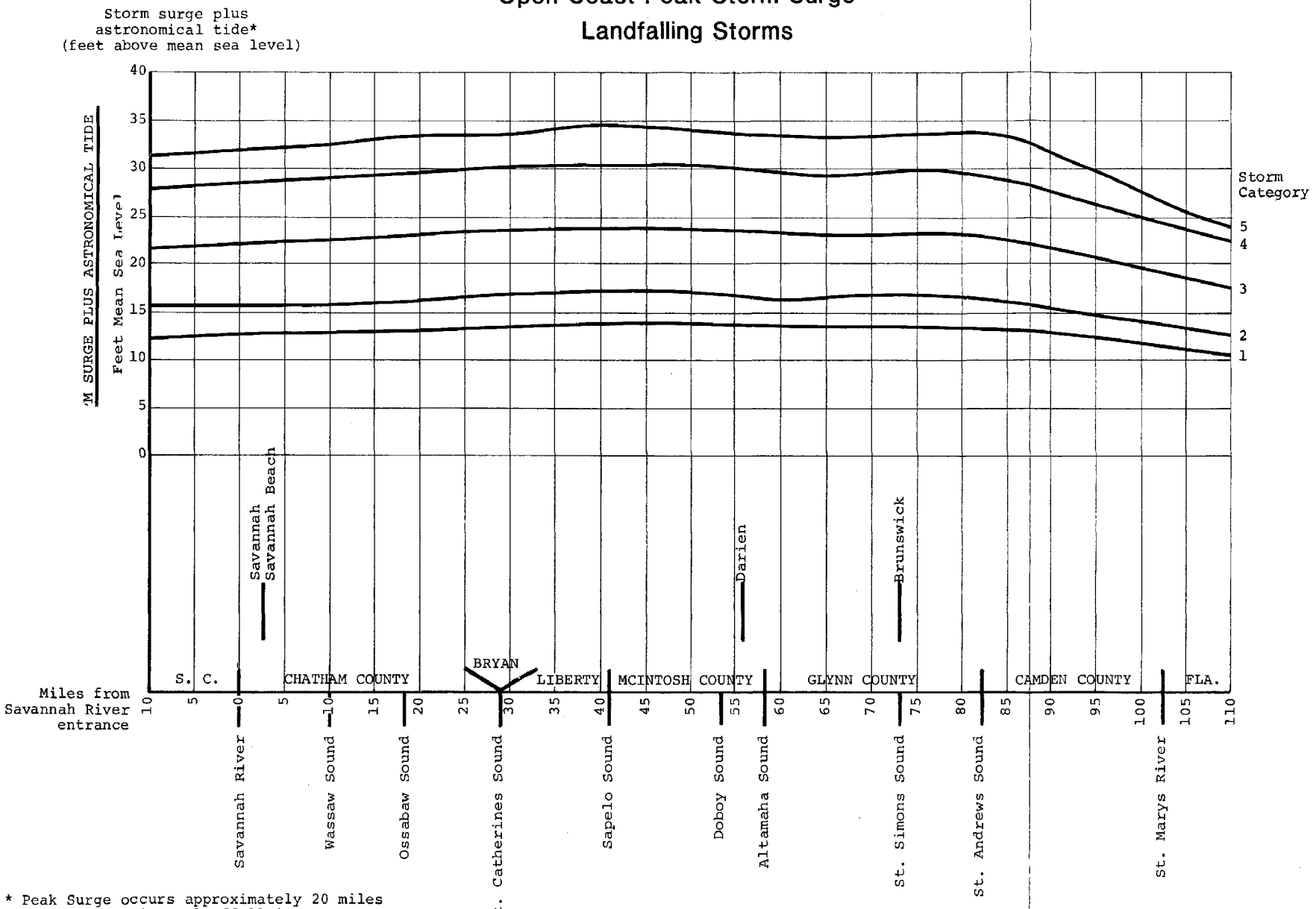
Analysis of the data for the simulated landfalling hurricanes on the Georgia Coast found that the peak surge generally occurs a distance equal to the Radius of Maximum winds (R) up the Coast (north) from hurricane landfall. "R" equals about 20 miles for category 1-3 storms and 12 miles for category 5 storms.

Wind velocities given in the SPLASH computer model printout is the 10 minute average wind velocity. The maximum ocean winds as described by the Saffir/Simpson scale is 1.31 times the 10 minute average.

It has been determined that Evacuation should be completed before the winds reach about 40 mph. This time can be determined by finding the time of the 30 mph (40÷ 1.31) winds at the area of peak surge. The time of 40 mph winds in hours before landfall is shown on Table 3 and in hours preceding a paralleling storm is shown on Table 4.

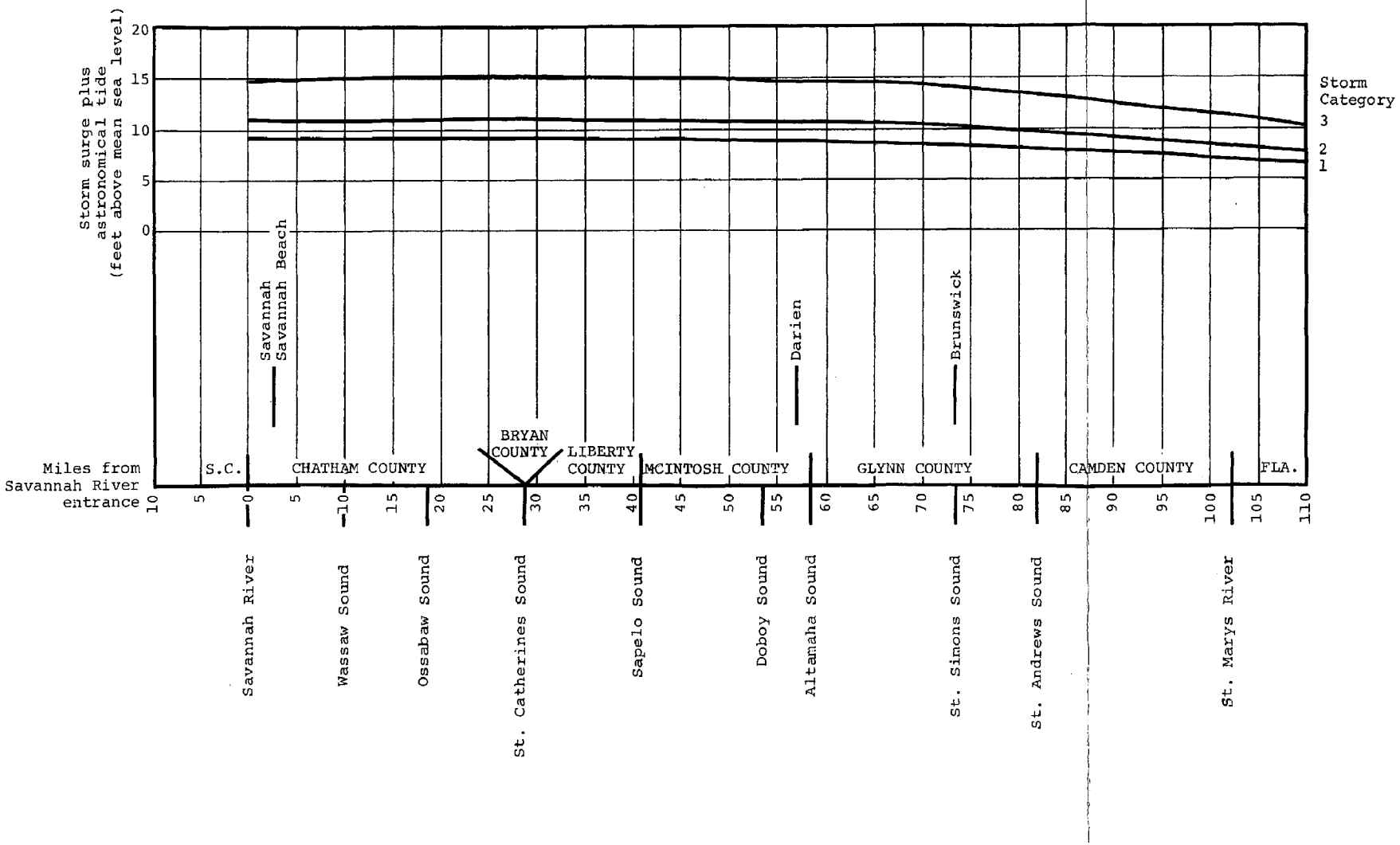
Attachment One - Figure 1

Open Coast Peak Storm Surge
Landfalling Storms

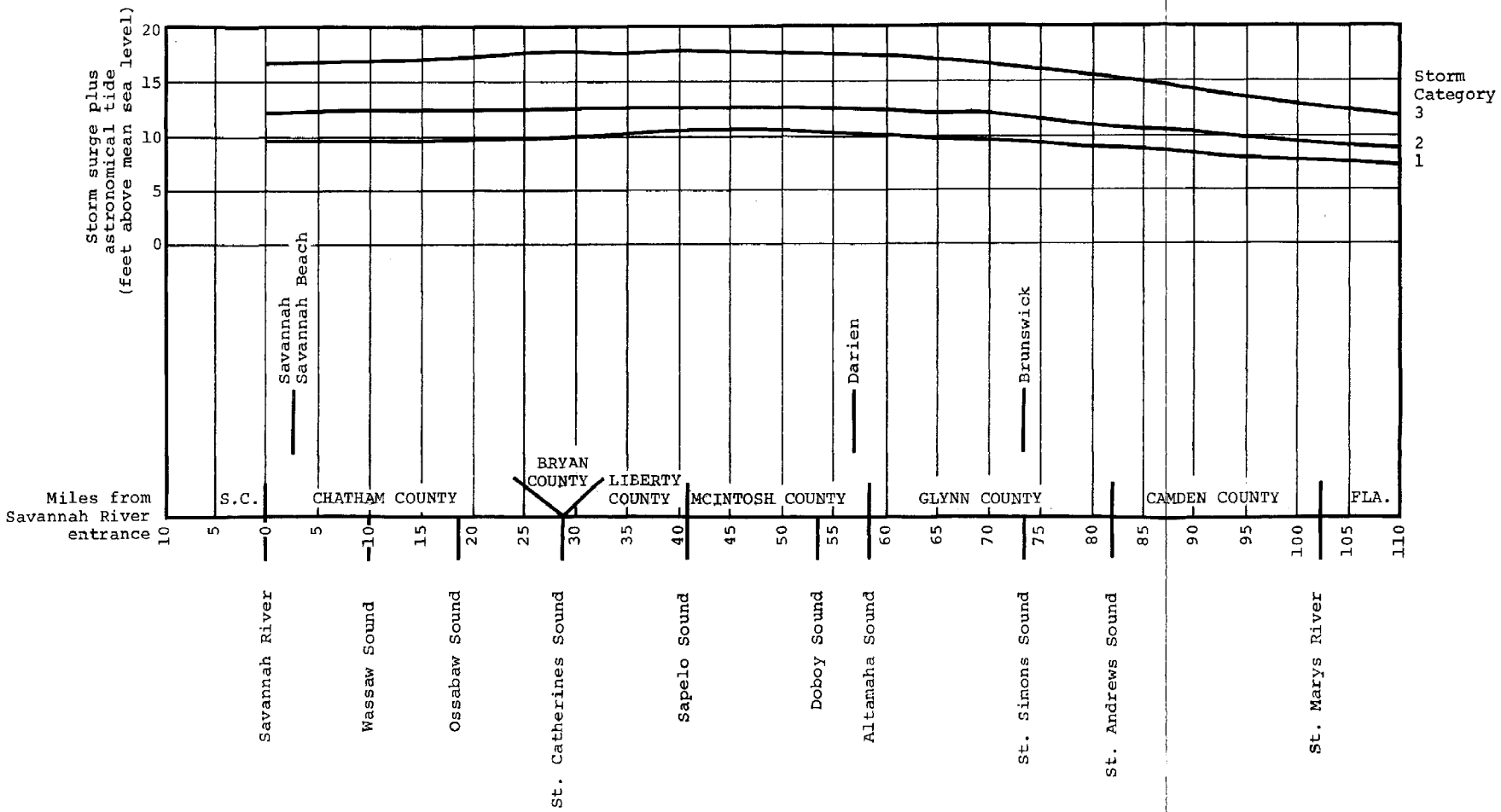


* Peak Surge occurs approximately 20 miles north of hurricane landfall in Category 1-4 storms, and 12 miles north of landfall during Category 5 storms.

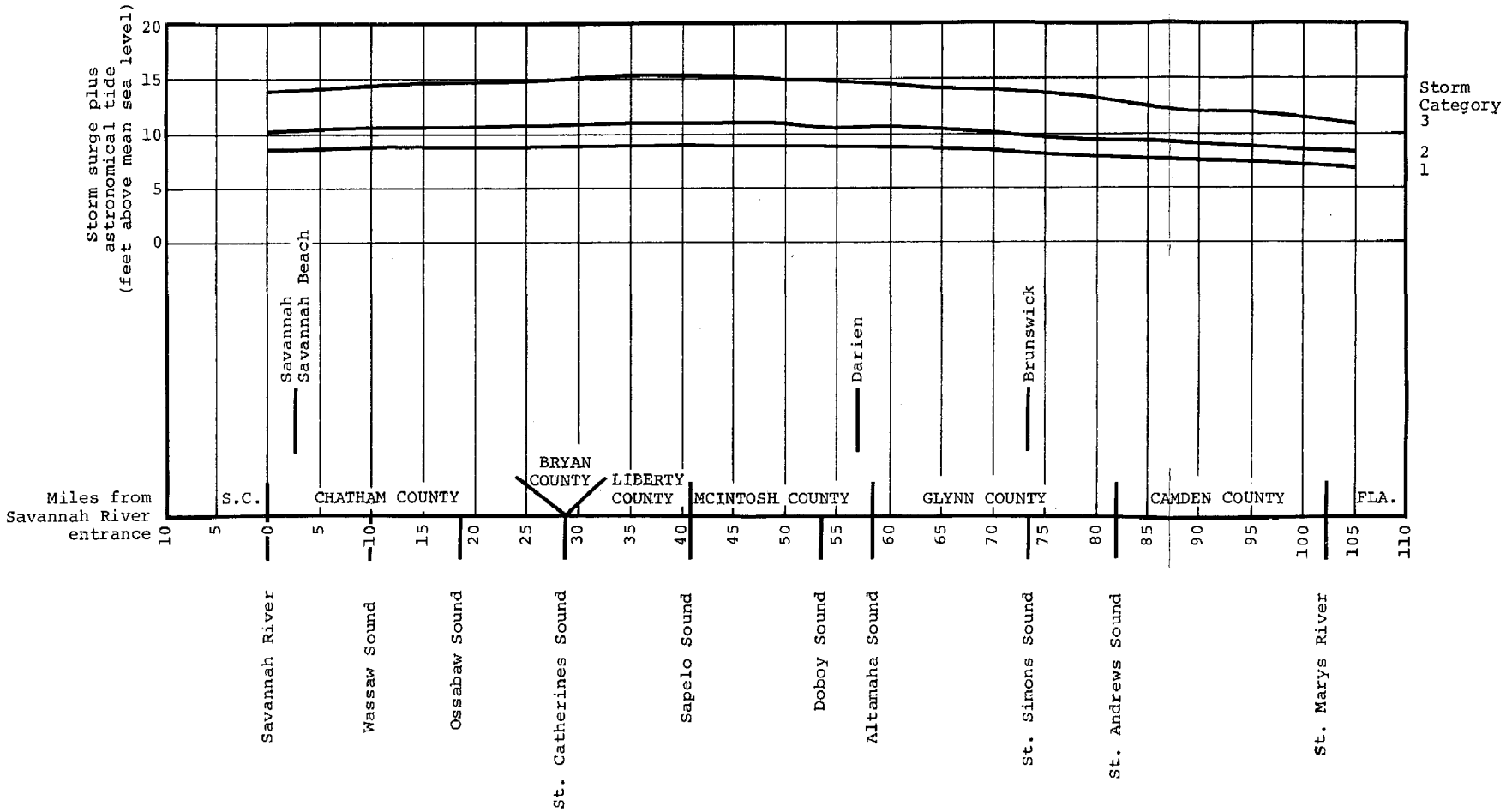
Open Coast Peak Storm Surge
Paralleling Storm 15 Miles West of Coastline (Inland)



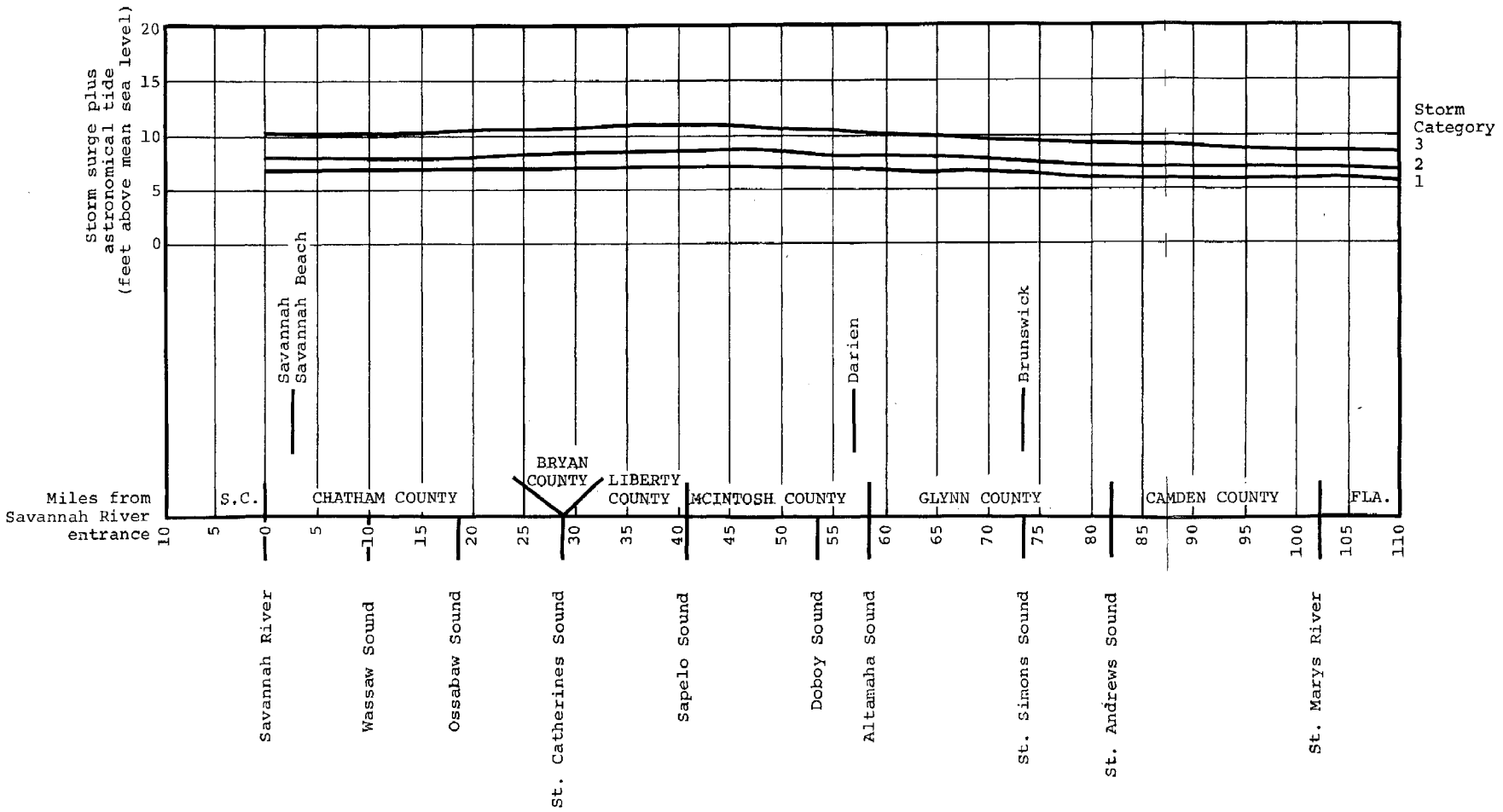
Open Coast Peak Storm Surge
Paralleling Storm on the Coastline



Open Coast Peak Storm Surge
Paralleling Storm 15 Miles East of Coastline



Open Coast Peak Storm Surge
Paralleling Storm 30 Miles East of Coastline



Open Coast Peak Storm Surge
Paralleling Storm 45 Miles East of Coastline

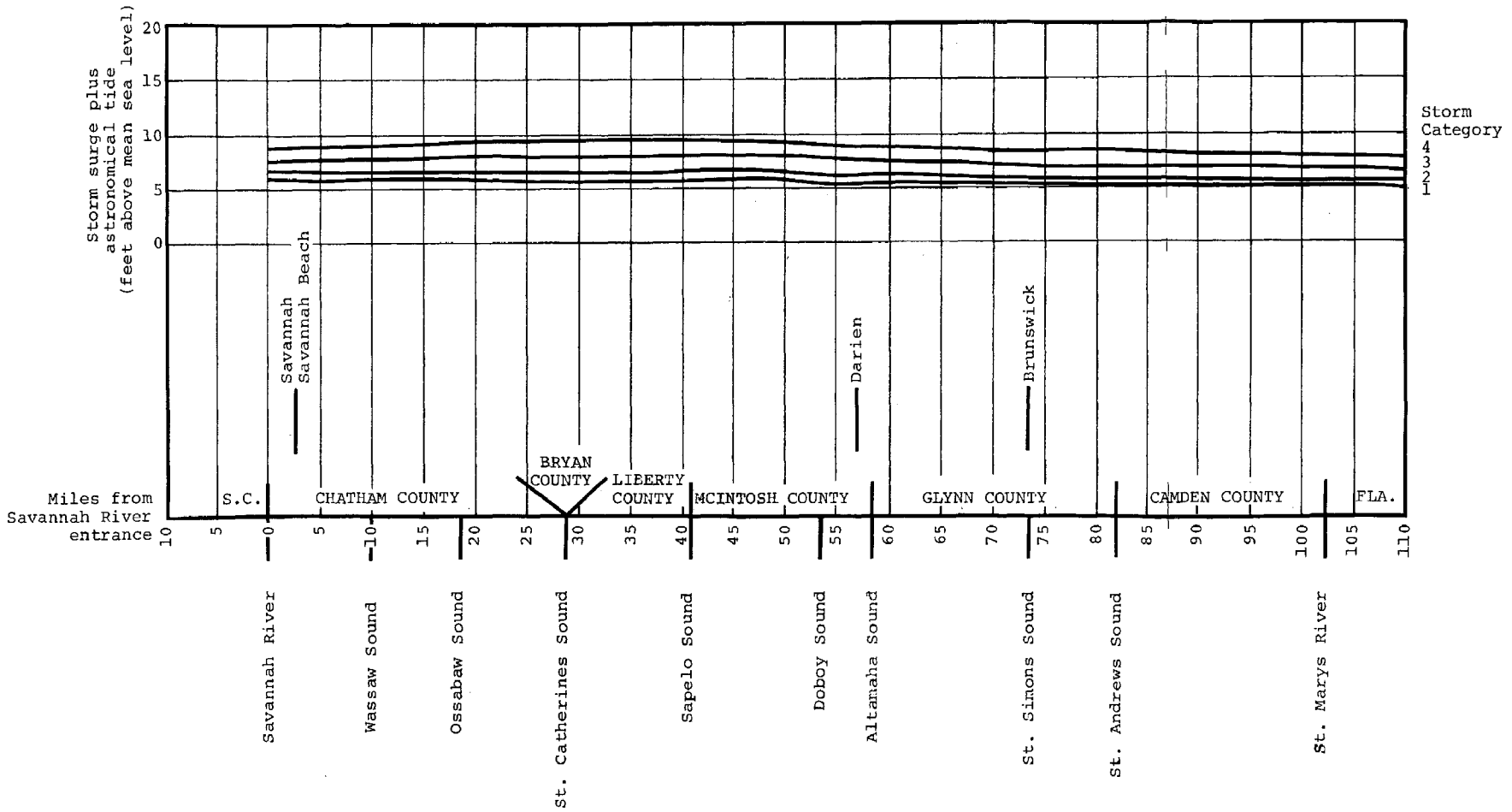


Table 3

LANDFALLING STORMS APPROACHING NORMAL TO COAST

Category	Eye or Closest Approach	Area Receiving Maximum Surge	Max Surge Storm + Astro Surge	Max Surge Storm + Astro Tide	Time of Max Surge (Hrs. before Landfall)	Pressure Drop (mb)	Radius of Max Winds	Forward Speed	Max Wind Speed Saffir/ Simpson Scale Avg	Max Wind Speed Saffir/ Simpson Scale 1.31 x Avg	Time of Max Winds	Time Of 40 mph Winds (hr.before Landfall)
1	North End of Tybee I.	Port Royal Sd.SC	8.6	12.5	0	30	20	12	63	82	1	6.5
2	"	"	11.6	15.5	0	40	20	12	73	96	1.5	7.5
3	"	"	17.7	21.6	0	60	20	12	91	120	1.5	9.5
4	"	"	23.8	27.7	0	80	20	12	105	138	1.5	11.5
5	"	Hilton Head I.SC	27.6	31.5	0	100	12	12	130	170	0	12.5
1	North End Wassaw I.	Hilton Head I.SC	8.7	12.6	0	30	20	12	65	82	0	6.5
2	"	"	11.8	15.7	0	40	20	12	74	97	1.5	7.5
3	"	"	18.0	21.9	0	60	20	12	91	120	1.5	9.5
4	"	"	24.3	28.2	0	80	20	12	105	138	1.5	11
5	"	Savannah Riv. En	28.2	32.1	0	100	12	12	130	170	.5	12.5
1	Ossabaw Island	Savannah Riv. En	8.9	12.8	0	30	20	12	64	84	0	6.5
2	"	Tybee Island	11.6	15.5	0	40	20	12	74	97	1.5	3
3	"	"	18.4	22.3	0	60	20	12	91	120	1.5	9.5
4	"	"	24.7	28.6	0	80	20	12	105	138	1.5	11.5
5	"	Tybee Island	28.9	32.8	0	100	12	12	130	170	.5	12.5
1	St. Catherines I.	Wassaw Sound	9.0	12.9	0	30	20	12	64	84	1	6.5
2	"	"	12.2	16.1	0	40	20	12	74	97	1.5	7.5
3	"	"	18.6	22.5	0	60	20	12	91	120	1.5	9.5
4	"	"	25.0	28.9	0	80	20	12	105	138	1.5	11
5	"	Ossabaw I.	29.7	33.6	0	100	12	12	129	169	.5	12.5
1	Black Beard I.	Ossabaw I.	9.4	13.3	0	30	20	12	64	84	1	6.5
2	"	"	12.7	16.6	0	40	20	12	74	97	1.5	7.5
3	"	"	19.4	23.3	0	60	20	12	91	120	1.5	9.5
4	"	"	26.0	29.9	0	80	20	12	105	138	1.5	11
5	"	St. Catherines I	29.9	33.8	0	100	12	12	129	169	0	12.5
1	Sapelo I.	St. Catherines I	9.6	13.4	0	30	20	12	64	84	1	6.5
2	"	"	12.9	16.7	0	40	20	12	74	97	1.5	7.5
3	"	"	19.7	23.5	0	60	20	12	91	120	1.5	9.5
4	"	"	26.5	30.3	0	80	20	12	105	138	1.5	11
5	"	Sapelo SD.	31.1	34.9	0	100	12	12	130	170	0	12.5

Table 3 (cont'd)

LANDFALLING STORMS APPROACHING NORMAL TO COAST

Category	Eye or Closest Approach	Area Receiving Maximum Surge	Max Surge Storm + Astro Surge	Max Surge Storm + Astro Tide	Time of Max Surge (Hrs. before Landfall)	Pressure Drop (mb)	Radius of Max Winds	Forward Speed	Max Wind Speed Saffir/ Simpson Scale Avg	Max Wind Speed Saffir/ Simpson Scale 1.31 x Avg	Time of Max Winds	Time Of 40 mph Winds (hr.before Landfall)
1	Little ST. Simons I.	BlackBeard I.	9.6	13.4	0	30	20	12	614	84	1	6.5
2	"	"	13.0	16.8	0	40	20	12	74	97	1.5	7.5
3	"	"	19.9	23.7	0	60	20	12	91	120	1.5	9.5
4	"	"	26.7	30.5	0	80	20	12	105	138	1.5	11
5	"	Sapelo I.	30.4	34.2	0	100	12	12	130	170	.5	12.5
1	St. Simons SD. (Bwk)	Wolf I.-Sapelo I	9.6	13.4	0	30	20	12	64	84	1	6.5
2	"	"	12.9	16.7	0	40	20	12	74	91	1.5	7.5
3	"	"	19.7	23.5	0	60	20	12	91	120	1.5	9.5
4	"	"	26.6	30.4	0	80	20	12	106	139	1.5	11.5
5	"	Little St. Sim.I	29.9	33.7	0	100	12	12	130	170	.5	12.5
1	Cumberland I. North End	St. Simons I.	9.3	12.8	0	30	20	12	64	84	1	6.5
2	"	"	12.5	16.0	0	40	20	12	74	97	1.5	7.5
3	"	"	19.1	22.6	0	60	20	12	91	120	1.5	9.5
4	"	"	25.8	29.3	0	80	20	12	106	139	1	11.5
5	"	"	29.6	33.1	0	100	12	12	129	169	.5	12.5
1	Cumberland I. S.	Jekyll Island	9.5	13.0	0	30	20	12	64	84	1	6.5
2	"	"	12.8	16.3	0	40	20	12	74	97	1.5	7.5
3	"	"	19.6	23.1	0	60	20	12	91	120	1.5	9.5
4	"	"	26.4	29.9	0	80	20	12	106	139	1.5	11
5	"	Jekyll I., St. Andrews	29.6	33.1	0	100	12	12	130	170	0	12.5
1	Fernandina Bch. Fl.	Cumberland I.	9.3	12.8	0	30	20	12	64	84	1	6.5
2	"	"	12.5	16.0	0	40	20	12	74	97	1.5	7.5
3	"	"	19.1	22.6	0	60	20	12	91	120	1.5	9.5
4	"	"	25.8	29.3	0	80	20	12	106	139	1.5	11
5	"	"	26.9	30.4	0	100	12	12	130	170	0	12.5
1	Nassau SD., FL.	St. Marys, GA	8.3	11.6	0	30	20	12	64	84	1	6.5
2	"	"	11.2	14.5	0	40	20	12	74	97	1	7
3	"	"	17.1	20.4	0	60	20	12	91	120	1	9.5
4	"	"	23.0	26.3	0	80	20	12	106	139	1	11
5	"	Fernandina Bch.Fl	22.7	26.0	0	100	12	12	129	169	.5	12.5

TABLE 4

PARALLELING HURRICANE

CAT.	HURRICANE TRACK	LOCATION ALONG COAST	MAX SURGE STORM+ASTRO SURGE	MAX SURGE STORM+ASTRO TIDE	TIME OF MAX SURGE (Hrs. preceeding storm)	TIME OF 40 mph Winds on shore (Hrs. preceeding storm)	STORM PARAMETERS PRESSURE DROP (mb)	STORM PARAMETERS RADIUS OF max. WINDS	STORM PARAMETERS FORWARD SPEED	WIND SPEED SAFFIR/SIMPSON Scale AVG.	WIND SPEED SAFFIR/SIMPSON Scale 1.31x Avg.
1	15 Miles Left	Savannah River Ent.	5.1	9.0	1.5	6	30	20	12	64	84
	of Coast	Tybee Island	5.1	9.0	1.5	6					
		Wassaw Sound	5.2	9.1	1.5	6					
		Wassaw Island	5.2	9.1	1.5	6					
		Ossabaw Sound	5.3	9.1	1.5	6					
		Ossabaw Island	5.3	9.1	1.5	7					
		St. Catherine's Sound	5.3	9.1	1.5	7					
		St. Catherine's I.	5.3	9.0	1.5	7					
		Sapelo Sound	5.3	9.0	2	7					
		Black Beard Island	5.3	9.0	2	7					
		Sapelo Island	5.3	9.0	2	7					
		Doboy Sound	5.2	8.8	2	7					
		Wolf Island	5.2	8.8	2	7					
		Altamaha Sound	5.2	8.8	2	7					
		St. Simons Island	5.1	8.7	2	7					
		St. Simons Sound	5.0	8.5	2	7					
		Jekyll Island	4.8	8.3	2	7.5					
		St. Andrews Sound	4.6	8.0	2	7.5					
		Cumberland Island	4.3	7.6	2	7.5					
		St. Marys River Ent.	3.7	7.0	2	7.5					

TABLE 4

PARALLELING HURRICANE

CAT.	HURRICANE TRACK	LOCATION ALONG COAST	MAX SURGE STORM+ASTRO SURGE	MAX SURGE STORM+ASTRO TIDE	TIME OF MAX SURGE (Hrs. preceeding storm)	TIME OF 40 mph Winds on shore (Hrs. preceeding storm)	STORM PARAMETERS PRESSURE DROP (mb)	STORM PARAMETERS RADIUS OF max. WINDS	STORM PARAMETERS FORWARD SPEED	WIND SPEED SAFFIR/ SIMPSON Scale AVG.	WIND SPEED SAFFIR/ SIMPSON Scale 1.31x Avg.
2	15 Miles Left	Savannah River Ent.	7.0	10.9	1.5	7.5	40	20	12	74	97
	Of Coast	Tybee Island	7.0	10.9	1.5	7.5					
		Wassaw Sound	7.1	10.9	1.5	7.5					
		Wassaw Island	7.1	10.9	1.5	7.5					
		Ossabaw Sound	7.2	11.0	1.5	7.5					
		Ossabaw Island	7.3	11.1	1.5	8					
		St. Catherine's Sound	7.3	11.0	1.5	8					
		St. Catherine's I.	7.3	11.0	1.5	8					
		Sapelo Sound	7.3	11.0	1.5	8					
		Black Beard Island	7.3	11.0	1.5	8					
		Sapelo Island	7.2	10.8	1.5	8					
		Doboy Sound	7.1	10.7	2	8					
		Wolf Island	7.1	10.7	2	8					
		Altamaha Sound	7.0	10.6	2	8					
		St. Simons Island	6.9	10.4	2	8.5					
		St. Simons Sound	6.8	10.3	2	8.5					
		Jekyll Island	6.5	10.0	2	8.5					
		St. Andrews Sound	6.3	9.7	2	8.5					
		Cumberland Island	5.6	8.9	2	8.5					
		St. Marys River Ent.	5.0	8.2	2	8.5					

TABLE 4

PARALLELING HURRICANE

CAT.	HURRICANE TRACK	LOCATION ALONG COAST	MAX SURGE STORM+ASTRO SURGE	MAX SURGE STORM+ASTRO TIDE	TIME OF MAX SURGE (Hrs. preceeding storm)	TIME OF 40 mph Winds on shore (Hrs. preceeding storm)	STORM PARAMETERS PRESSURE DROP (mb)	STORM PARAMETERS RADIUS OF max. WINDS	STORM PARAMETERS FORWARD SPEED	WIND SPEED SAFFIR/ SIMPSON Scale AVG.	WIND SPEED SAFFIR/ SIMPSON Scale 1.31x Avg.
3	15 Miles Left	Savannah River Ent.	10.9	14.8	1.5	10	60	20	12	91	120
	Of Coast	Tybee Island	10.9	14.8	1.5	10					
		Wassaw Sound	11.1	14.9	1.5	10					
		Wassaw Island	11.2	14.9	1.5	10					
		Ossabaw Sound	11.3	15.1	1.5	10					
		Ossabaw Island	11.4	15.2	1.5	10					
		St. Catherine's Sound	11.4	15.2	1.5	10					
		St. Catherine's I.	11.4	15.1	1.5	10					
		Sapelo Sound	11.3	15.0	2	10					
		Black Beard Island	11.3	15.0	2	10					
		Sapelo Island	11.2	14.9	2	10					
		Doboy Sound	11.2	14.8	2	10.5					
		Wolf Island	11.1	14.7	2	10.5					
		Altamaha Sound	11.0	14.6	2	10.5					
		St. Simons Island	10.9	14.4	2	10.5					
		St. Simons Sound	10.6	14.1	2	10.5					
		Jekyll Island	10.4	13.8	2	10.5					
		St. Andrews Sound	9.8	13.2	2	10.5					
		Cumberland Island	9.0	12.2	2	10.5					
		St. Marys River Ent.	8.0	11.1	2	10.5					

TABLE 4

PARALLELING HURRICANE

CAT.	HURRICANE TRACK	LOCATION ALONG COAST	MAX SURGE STORM	MAX SURGE +ASTRO TIDE	TIME OF MAX SURGE (Hrs. preceeding storm)	TIME OF 40 mph Winds on shore (Hrs. preceeding storm)	STORM PARAMETERS PRESSURE DROP (mb)	STORM PARAMETERS RADIUS OF max. WINDS	STORM PARAMETERS FORWARD SPEED	WIND SPEED SAFFIR/ SIMPSON Scale AVG.	WIND SPEED SAFFIR/ SIMPSON Scale 1.31x Avg.
1	00 Miles Left	Savannah River Ent.	6.0	9.9	1.5	6.5	30	20	12	62	81
	Of Coast	Tybee Island	6.1	10.0	1.5	6.5					
		Wassaw Sound	6.2	10.1	1.5	6.5					
		Wassaw Island	6.2	10.1	1.5	6.5					
		Ossabaw Sound	6.3	10.1	1.5	7					
		Ossabaw Island	6.3	10.1	1.5	7					
		St. Catherine's Sound	6.4	10.2	1.5	7					
		St. Catherine's I.	6.5	10.3	1.5	7					
		Sapelo Sound	6.6	10.3	1.5	7					
		Black Beard Island	6.7	10.4	1.5	7					
		Sapelo Island	6.7	10.4	2	7					
		Doboy Sound	6.6	10.2	2	7					
		Wolf Island	6.6	10.2	2	7					
		Altamaha Sound	6.6	10.2	2	7					
		St. Simons Island	6.4	10.0	2	7					
		St. Simons Sound	6.1	9.6	2	7					
		Jekyll Island	5.8	9.6	2	7					
		St. Andrews Sound	5.5	8.9	2	6.5					
		Cumberland Island	5.1	8.4	2	6.5					
		St. Marys River Ent.	4.5	7.6	2	6.5					

TABLE 4

PARALLELING HURRICANE

CAT.	HURRICANE TRACK	LOCATION ALONG COAST	MAX SURGE STORM+ASTRO SURGE	MAX SURGE STORM+ASTRO TIDE	TIME OF MAX SURGE (Hrs. preceeding storm)	TIME OF 40 mph Winds on shore (Hrs. preceeding storm)	STORM PARAMETERS PRESSURE DROP (mb)	STORM PARAMETERS RADIUS OF max. WINDS	STORM PARAMETERS FORWARD SPEED	WIND SPEED SAFFIR/SIMPSON Scale AVG.	WIND SPEED SAFFIR/SIMPSON Scale 1.31x Avg.
2	00 Miles Left	Savannah River Ent.	8.3	12.2	1.5	8	40	20	12	72	94
	Of Coast	Tybee Island	8.4	12.3	1.5	8					
		Wassaw Sound	8.5	12.4	1.5	8					
		Wassaw Island	8.6	12.4	1.5	8					
		Ossabaw Sound	8.6	12.4	1.5	8					
		Ossabaw Island	8.7	12.5	1.5	8					
		St. Catherine's Sound	8.8	12.6	1.5	8					
		St. Catherine's I.	8.9	12.7	1.5	8					
		Sapelo Sound	9.1	12.3	2	8					
		Black Beard Island	9.1	12.3	2	8					
		Sapelo Island	9.0	12.7	2	8					
		Doboy Sound	9.0	12.6	1.5	8					
		Wolf Island	9.0	12.6	1.5	8					
		Altamaha Sound	9.0	12.6	1.5	8					
		St. Simons Island	8.7	12.3	1.5	8					
		St. Simons Sound	8.3	11.8	1.5	8					
		Jekyll Island	8.0	11.5	1.5	8					
		St. Andrews Sound	7.6	11.0	1.5	8					
		Cumberland Island	7.0	10.3	1.5	8					
		St. Marys River Ent.	6.1	9.3	2	8					

TABLE 4

PARALLELING HURRICANE

CAT.	HURRICANE TRACK	LOCATION ALONG COAST	MAX SURGE STORM+ASTRO SURGE	MAX SURGE STORM+ASTRO TIDE	TIME OF MAX SURGE (Hrs. preceeding storm)	TIME OF 40 mph Winds on shore (Hrs. preceeding storm)	STORM PARAMETERS PRESSURE DROP (mb)	STORM PARAMETERS RADIUS OF max. WINDS	STORM PARAMETERS FORWARD SPEED	WIND SPEED SAFFIR/ SIMPSON Scale AVG.	WIND SPEED SAFFIR/ SIMPSON Scale 1.31x Avg.
3	00 Miles Left	Savannah River Ent.	12.8	16.7	2	10	60	20	12	89	117
	Of Coast	Tybee Island	13.0	16.9	2	10					
		Wassaw Sound	13.2	17.1	2	10					
		Wassaw Island	13.4	17.2	2	10					
		Ossabaw Sound	13.5	17.3	1.5	9.5					
		Ossabaw Island	13.6	17.4	1.5	9.5					
		St. Catherine's Sound	13.9	17.7	2	9.5					
		St. Catherine's I.	14.0	17.7	2	10					
		Sapelo Sound	14.3	18.0	2	10					
		Black Beard Island	14.3	18.0	2	10					
		Sapelo Island	14.1	17.1	2	10					
		Doboy Sound	14.1	17.7	2	10					
		Wolf Island	14.0	17.6	1.5	10					
		Altamaha Sound	13.9	17.5	1.5	10					
		St. Simons Island	13.5	17.0	1.5	10					
		St. Simons Sound	13.0	16.9	1.5	10					
		Jekyll Island	12.5	15.9	1.5	9.5					
		St. Andrews Sound	11.8	15.2	2	9.5					
		Cumberland Island	10.9	14.2	2	9.5					
		St. Marys River Ent.	9.4	12.6	2	9.5					

TABLE 4

PARALLELING HURRICANE

CAT.	HURRICANE TRACK	LOCATION ALONG COAST	MAX SURGE STORM	MAX SURGE +ASTRO TIDE	TIME OF MAX SURGE (Hrs. preceeding storm)	TIME OF 40 mph Winds on shore (Hrs. preceeding storm)	STORM PARAMETERS: PRESSURE DROP (mb)	STORM PARAMETERS: RADIUS OF max. WINDS	STORM PARAMETERS: FORWARD SPEED	WIND SPEED SAFFIR/ SIMPSON Scale: AVG.	WIND SPEED SAFFIR/ SIMPSON Scale: 1.31x Avg.
1	15 Miles Right	Savannah River Ent.	4.7	8.6	1.5	6	30	20	12	57	75
	Of Coast	Tybee Island	4.8	8.7	1.5	6					
		Wassaw Sound	4.9	8.8	1.5	6					
		Wassaw Island	5.0	8.8	1.5	6					
		Ossabaw Sound	5.1	8.9	1.5	6					
		Ossabaw Island	5.1	8.9	1.5	6					
		St. Catherine's Sound	5.2	9.0	1.5	6					
		St. Catherine's I.	5.2	8.9	1.5	6					
		Sapelo Sound	5.3	9.0	1.5	6					
		Black Beard Island	5.3	9.0	1.5	6					
		Sapelo Island	5.2	8.8	1.5	6					
		Doboy Sound	5.2	8.8	1.5	6					
		Wolf Island	5.2	8.8	1.5	6					
		Altamaha Sound	5.1	8.7	1.5	6					
		St. Simons Island	5.0	8.6	1.5	6					
		St. Simons Sound	4.7	8.2	1.5	6					
		Jekyll Island	4.5	7.9	1.5	6					
		St. Andrews Sound	4.3	7.7	1.5	6					
		Cumberland Island	4.0	7.3	1.5	5.5					
		St. Marys River Ent.	3.8	7.0	1.5	5.5					

TABLE 4

PARALLELING HURRICANE

CAT.	HURRICANE TRACK	LOCATION ALONG COAST	MAX SURGE STORM+ASTRO SURGE	MAX SURGE STORM+ASTRO TIDE	TIME OF MAX SURGE (Hrs. preceeding storm)	TIME OF 40 mph Winds on shore (Hrs. preceeding storm)	STORM PARAMETERS PRESSURE DROP (mb)	STORM PARAMETERS RADIUS OF max. WINDS	STORM PARAMETERS FORWARD SPEED	WIND SPEED SAFFIR/ SIMPSON Scale AVG.	WIND SPEED SAFFIR/ SIMPSON Scale 1.31x Avg.
2	15 Miles Right Of Coast	Savannah River Ent.	6.4	10.3	1.5	7.5	40	20	12	67	88
		Tybee Island	6.5	10.4	1.5	7.5					
		Wassaw Sound	6.6	10.5	1.5	7.5					
		Wassaw Island	6.7	10.5	1.5	7.5					
		Ossabaw Sound	6.9	10.7	1.5	7.5					
		Ossabaw Island	7.0	10.8	1.5	7.5					
		St. Catherine's Sound	7.1	10.9	1.5	7.5					
		St. Catherine's I.	7.2	10.9	1.5	7.5					
		Sapelo Sound	7.4	11.1	1.5	7.5					
		Black Beard Island	7.3	11.0	1.5	7.5					
		Sapelo Island	7.2	10.9	1.5	7.5					
		Doboy Sound	7.2	10.8	1.5	7.5					
		Wolf Island	7.1	10.7	1.5	7					
		Altamaha Sound	7.0	10.6	1.5	7					
		St. Simons Island	6.8	10.3	1.5	7					
		St. Simons Sound	6.5	10.0	1.5	7					
		Jekyll Island	6.3	9.7	1.5	7					
		St. Andrews Sound	6.0	9.4	1.5	7					
		Cumberland Island	5.6	8.9	1.5	7					
		St. Marys River Ent.	5.1	8.3	1.5	7					

TABLE 4

PARALLELING HURRICANE

CAT.	HURRICANE TRACK	LOCATION ALONG COAST	MAX SURGE STORM+ASTRO SURGE	MAX SURGE STORM+ASTRO TIDE	TIME OF MAX SURGE (Hrs. preceeding storm)	TIME OF 40 mph Winds on shore (Hrs. preceeding storm)	STORM PARAMETERS PRESSURE DROP (mb)	STORM PARAMETERS RADIUS OF max. WINDS	STORM PARAMETERS FORWARD SPEED	WIND SPEED SAFFIR/SIMPSON Scale AVG.	WIND SPEED SAFFIR/SIMPSON Scale 1.31x Avg.
3	15 Miles Right	Savannah River Ent.	10.1	14.0	1.5	9.5	60	20	12	84	110
	Of Coast	Tybee Island	10.3	14.2	1.5	9.5					
		Wassaw Sound	10.5	14.4	1.5	9.5					
		Wassaw Island	10.7	14.5	1.5	9.5					
		Ossabaw Sound	11.0	14.8	1.5	9.5					
		Ossabaw Island	11.0	14.8	1.5	9.5					
		St. Catherine's Sound	11.3	15.1	1.5	9.5					
		St. Catherine's I.	11.5	15.3	1.5	9.5					
		Sapelo Sound	11.6	15.3	1.5	9.5					
		Black Beard Island	11.7	15.4	1.5	9.5					
		Sapelo Island	11.5	15.1	1.5	9.5					
		Doboy Sound	11.3	14.9	1.5	9.5					
		Wolf Island	11.2	14.8	1.5	9.0					
		Altamaha Sound	11.1	14.7	1.5	9.0					
		St. Simons Island	10.7	14.3	1.5	9.0					
		St. Simons Sound	10.1	13.6	1.5	9.0					
		Jekyll Island	9.7	13.2	1.5	9.0					
		St. Andrews Sound	9.4	12.8	1.5	9.0					
		Cumberland Island	8.8	12.1	1.5	9.0					
		St. Marys River Ent.	8.0	11.2	1.5	9.0					

TABLE 4

PARALLELING HURRICANE

CAT.	HURRICANE TRACK	LOCATION ALONG COAST	MAX SURGE STORM	MAX SURGE +ASTRO TIDE	TIME OF MAX SURGE (Hrs. preceeding storm)	TIME OF 40 mph Winds on shore (Hrs. preceeding storm)	STORM PARAMETERS PRESSURE DROP (mb)	STORM PARAMETERS RADIUS OF max. WINDS	STORM PARAMETERS FORWARD SPEED	WIND SPEED SAFFIR/ SIMPSON Scale AVG.	WIND SPEED SAFFIR/ SIMPSON Scale 1.31x Avg.
1	30 Miles Right	Savannah River Ent.	2.9	6.8	2.5	6	30	20	12	48	63
	Of Coast	Tybee Island	3.0	6.9	2.5	6					
		Wassaw Sound	3.0	6.9	2.5	6					
		Wassaw Island	3.1	7.0	2.5	6					
		Ossabaw Sound	3.1	6.9	2.5	5.5					
		Ossabaw Island	3.2	7.0	2.5	5.5					
		St. Catherine's Sound	3.2	7.0	2.5	5.5					
		St. Catherine's I.	3.2	7.0	2.5	5.5					
		Sapelo Sound	3.3	7.0	2.5	5.5					
		Black Beard Island	3.3	7.0	2.5	5.5					
		Sapelo Island	3.3	6.9	2.5	5.5					
		Doboy Sound	3.3	6.9	2.5	5.5					
		Wolf Island	3.2	6.8	1.5	5.5					
		Altamaha Sound	3.1	6.7	1.5	5.5					
		St. Simons Island	3.0	6.6	1.5	5					
		St. Simons Sound	2.9	6.4	1.5	5					
		Jekyll Island	2.9	6.4	1.5	5					
		St. Andrews Sound	2.8	6.3	1.5	5					
		Cumberland Island	2.7	6.0	1.5	5					
		St. Marys River Ent.	2.5	5.7	1.5	5					

TABLE 4

PARALLELING HURRICANE

CAT.	HURRICANE TRACK	LOCATION ALONG COAST	MAX SURGE STORM+ASTRO SURGE	TIDE	TIME OF MAX SURGE (Hrs. preceeding storm)	TIME OF 40 mph Winds on shore (Hrs. preceeding storm)	STORM PARAMETERS PRESSURE DROP (mb)	RADIUS OF max. WINDS	FORWARD SPEED	WIND SPEED SAFFIR/ SIMPSON Scale AVG.	1.31x Avg.
2	30 Miles Right	Savannah River Ent.	3.9	7.8	2.5	7	40	20	12	56	73
	Of Coast	Tybee Island	4.0	7.9	2.5	7					
		Wassaw Sound	4.0	7.9	2.5	7					
		Wassaw Island	4.1	7.9	2.5	7					
		Ossabaw Sound	4.2	8.0	2.5	7					
		Ossabaw Island	4.3	8.1	2.5	7					
		St. Catherine's Sound	4.5	8.3	2	7					
		St. Catherine's I.	4.6	8.3	2	7					
		Sapelo Sound	4.7	8.4	2	7					
		Black Beard Island	4.6	8.3	2	7					
		Sapelo Island	4.5	8.1	2	7					
		Doboy Sound	4.5	8.1	2	7					
		Wolf Island	4.4	8.0	1.5	6					
		Altamaha Sound	4.3	7.9	1.5	6					
		St. Simons Island	4.2	7.8	1.5	6					
		St. Simons Sound	4.0	7.5	1.5	6					
		Jekyll Island	3.9	7.4	1.5	6					
		St. Andrews Sound	3.8	7.2	1.5	6					
		Cumberland Island	3.6	6.9	1.5	6					
		St. Marys River Ent.	3.5	6.7	1.5	6					

TABLE 4

PARALLELING HURRICANE

CAT.	HURRICANE TRACK	LOCATION ALONG COAST	MAX SURGE STORM+ASTRO SURGE	MAX SURGE STORM+ASTRO TIDE	TIME OF MAX SURGE (Hrs. preceeding storm)	TIME OF 40 mph Winds on shore (Hrs. preceeding storm)	STORM PARAMETERS PRESSURE DROP (mb)	STORM PARAMETERS RADIUS OF max. WINDS	STORM PARAMETERS FORWARD SPEED	WIND SPEED SAFFIR/ SIMPSON Scale AVG.	WIND SPEED SAFFIR/ SIMPSON Scale 1.31x Avg.
3	30 Miles Right	Savannah River Ent.	6.1	10.0	2.5	9.5	60	20	12	72	94
	Of Coast	Tybee Island	6.2	10.1	2.5	9.5					
		Wassaw Sound	6.4	10.3	2.5	9.5					
		Wassaw Island	6.5	10.3	2.5	9.5					
		Ossabaw Sound	6.5	10.3	2.5	9.5					
		Ossabaw Island	6.7	10.5	2.5	9					
		St. Catherine's Sound	6.8	10.6	2	9					
		St. Catherine's I.	7.1	10.6	2	9					
		Sapelo Sound	7.2	10.9	2	9					
		Black Beard Island	7.2	10.9	2	9					
		Sapelo Island	6.9	10.5	2	9					
		Doboy Sound	6.8	10.4	2	9					
		Wolf Island	6.8	10.4	1.5	8.5					
		Altamaha Sound	6.7	10.3	1.5	8.5					
		St. Simons Island	6.4	10.0	1.5	8.5					
		St. Simons Sound	6.1	9.6	1.5	8.5					
		Jekyll Island	6.0	9.5	1.5	8					
		St. Andrews Sound	5.9	9.3	1.5	8					
		Cumberland Island	5.7	9.0	1.5	8					
		St. Marys River Ent.	5.5	8.7	1.5	7.5					

TABLE 4

PARALLELING HURRICANE

CAT.	HURRICANE TRACK	LOCATION ALONG COAST	MAX SURGE STORM+ASTRO SURGE	MAX SURGE STORM+ASTRO TIDE	TIME OF MAX SURGE (Hrs. preceeding storm)	TIME OF 40 mph Winds on shore (Hrs. preceeding storm)	STORM PARAMETERS PRESSURE DROP (mb)	STORM PARAMETERS RADIUS OF max. WINDS	STORM PARAMETERS FORWARD SPEED	WIND SPEED SAFFIR/SIMPSON AVG.	WIND SPEED SAFFIR/SIMPSON Scale 1.31x Avg.
1	45 Miles Right	Savannah River Ent.	1.8	5.7	3	5	30	20	12	38	50
	Of Coast	Tybee Island	1.8	5.7	3	5					
		Wassaw Sound	1.9	5.8	3	5					
		Wassaw Island	1.9	5.7	3	5					
		Ossabaw Sound	2.0	5.8	3	4.5					
		Ossabaw Island	2.0	5.8	3	4.5					
		St. Catherine's Sound	2.0	5.8	3	4.5					
		St. Catherine's I.	2.0	5.7	3	4.5					
		Sapelo Sound	2.1	5.8	2.5	4.5					
		Black Beard Island	2.1	5.8	2.5	4.5					
		Sapelo Island	2.0	5.6	2.5	4.5					
		Doboy Sound	2.0	5.6	2.5	4					
		Wolf Island	2.0	5.6	2	4					
		Altamaha Sound	2.0	5.6	2	4					
		St. Simons Island	1.9	5.5	2	4					
		St. Simons Sound	1.8	5.3	2	4					
		Jekyll Island	1.8	5.3	2	4					
		St. Andrews Sound	1.8	5.2	1.5	4					
		Cumberland Island	1.8	5.0	2	4					
		St. Marys River Ent.	1.8	5.0	2.5	3					

TABLE 4

PARALLELING HURRICANE

CAT.	HURRICANE TRACK	LOCATION ALONG COAST	MAX SURGE STORM	MAX SURGE ASTRO TIDE	TIME OF MAX SURGE (Hrs. preceeding storm)	TIME OF 40 mph Winds on shore (Hrs. preceeding storm)	STORM PARAMETERS PRESSURE DROP (mb)	STORM PARAMETERS RADIUS OF max. WINDS	STORM PARAMETERS FORWARD SPEED	WIND SPEED SAFFIR/ SIMPSON Scale AVG.	WIND SPEED SAFFIR/ SIMPSON Scale 1.31x Avg.
2	45 Miles Right	Savannah River Ent.	2.4	6.3	3.5	6	40	20	12	45	59
	Of Coast	Tybee Island	2.5	6.4	3.5	6					
		Wassaw Sound	2.6	6.5	3.5	6					
		Wassaw Island	2.6	6..4	2.5	6					
		Ossabaw Sound	2.7	6.5	2.5	6					
		Ossabaw Island	2.7	6.5	2.5	6					
		St. Catherine's Sound	2.7	6.5	2.5	6					
		St. Catherine's I.	2.8	6.5	2.5	6					
		Sapelo Sound	2.9	6.6	2	6					
		Black Beard Island	2.9	6.6	2	6					
		Sapelo Island	2.8	6.4	2	6					
		Doboy Sound	2.7	6.3	2	6					
		Wolf Island	2.7	6.3	2	5.5					
		Altamaha Sound	2.7	6.3	1.5	5.5					
		St. Simons Island	2.6	6.2	1.5	5.5					
		St. Simons Sound	2.5	6.0	1.5	5					
		Jekyll Island	2.5	6.0	1.5	5					
		St. Andrews Sound	2.4	5.8	1.5	5					
		Cumberland Island	2.3	5.6	1.5	5					
		St. Marys River Ent.	2.3	5.5	1.5	4.5					

TABLE 4

PARALLELING HURRICANE

CAT.	HURRICANE TRACK	LOCATION ALONG COAST	MAX SURGE STORM+ASTRO SURGE	MAX SURGE STORM+ASTRO TIDE	TIME OF MAX SURGE (Hrs. preceeding storm)	TIME OF 40 mph Winds on shore (Hrs. preceeding storm)	STORM PARAMETERS PRESSURE DROP (mb)	STORM PARAMETERS RADIUS OF max. WINDS	STORM PARAMETERS FORWARD SPEED	WIND SPEED SAFFIR/ SIMPSON Scale AVG.	WIND SPEED SAFFIR/ SIMPSON Scale 1.31x Avg.
3	45 Miles Right	Savannah River Ent.	3.7	7.6	3.5	8.5	60	20	12	56	73
	Of Coast	Tybee Island	3.8	7.7	3.5	8.5					
		Wassaw Sound	3.9	7.8	3.5	8.5					
		Wassaw Island	4.0	7.8	3.5	8.5					
		Ossabaw Sound	4.0	7.8	2.5	8.5					
		Ossabaw Island	4.1	7.9	2.5	8.5					
		St. Catherine's Sound	4.3	8.1	2.5	8.5					
		St. Catherine's I.	4.3	8.0	2.5	8					
		Sapelo Sound	4.4	8.1	2.5	8					
		Black Beard Island	4.4	8.1	2.5	8					
		Sapelo Island	4.2	7.8	2.5	8					
		Doboy Sound	4.1	7.7	2.5	8					
		Wolf Island	4.1	7.7	2	7.5					
		Altamaha Sound	4.0	7.6	2	7.5					
		St. Simons Island	4.0	7.6	1.5	7.5					
		St. Simons Sound	3.6	7.3	1.5	7.5					
		Jekyll Island	3.7	7.2	1.5	7					
		St. Andrews Sound	3.7	7.1	1.5	7					
		Cumberland Island	3.7	7.0	1.5	7					
		St. Marys River Ent.	3.6	6.8	1.5	6.5					

TABLE 4

PARALLELING HURRICANE

CAT.	HURRICANE TRACK	LOCATION ALONG COAST	MAX SURGE STORM+ASTRO SURGE	TIDE	TIME OF MAX SURGE (Hrs. preceeding storm)	TIME OF 40 mph Winds on shore (Hrs. preceeding storm)	STORM PARAMETERS PRESSURE DROP (mb)	RADIUS OF max. WINDS	FORWARD SPEED	WIND SPEED SAFFIR/ SIMPSON Scale AVG.	1.31x Avg.
4	45 Miles Right	Savannah River Ent.	4.9	8.8	3.5	10.5	80	20	12	66	86
	Of Coast	Tybee Island	5.0	8.9	3.5	10.5					
		Wassaw Sound	5.1	9.0	3.5	10.5					
		Wassaw Island	5.3	9.1	2.5	10.5					
		Ossabaw Sound	5.4	9.2	2.5	10.0					
		Ossabaw Island	5.6	9.4	2.5	10.0					
		St. Catherine's Sound	5.6	9.4	2.5	10.0					
		St. Catherine's I.	5.7	9.4	2.5	10.0					
		Sapelo Sound	5.8	9.5	2.5	10.0					
		Black Beard Island	5.8	9.5	2.5	10.0					
		Sapelo Island	5.6	9.2	2.5	10.0					
		Doboy Sound	5.5	9.1	2.5	10.0					
		Wolf Island	5.5	7.1	1.5	9					
		Altamaha Sound	5.4	9.0	1.5	9					
		St. Simons Island	5.2	8.8	1.5	9					
		St. Simons Sound	5.0	8.5	1.5	9					
		Jekyll Island	5.0	8.4	1.5	9					
		St. Andrews Sound	5.0	8.4	1.5	8.5					
		Cumberland Island	4.9	8.2	1.5	8.5					
		St. Marys River Ent.	4.8	8.0	1.5	8					

READINESS ACTION CHECKLISTS

ATTACHMENT TWO

Attachment 2

Table 1

HURRICANE INCREASED READINESS ACTIONS CHECK LIST

AGENCY ACTIONS	RESCUE SERVICE/EMS	HEALTH DEPARTMENT	DEPARTMENT OF FAMILY & CHILDREN SERVICES (DFCS)
CONDITION 5 BEGINNING OF HURRICANE SEASON (JUNE 1)	1. Update internal SOP. 2. Participate in local jurisdiction exercises. 3. Maintain inventory of resources i.e. personnel, equipment, vehicles and supplies.	1. Update internal SOP. 2. Conduct in-house hurricane response training. 3. Participate in local jurisdictional exercises. 4. Stockpile emergency medical supplies for use in shelters. 5. Maintain inventory of resources i.e. personnel, equipment, vehicles and supplies. 6. Maintain roster of nurses for shelter staff in coordination with Red Cross.	1. Update internal SOP. 2. Conduct in-house hurricane response training. 3. Participate in local jurisdictional exercises. 4. Maintain equipment in serviceable condition. 5. Maintain inventory of resources i.e. personnel, equipment, vehicles and supplies. 6. Coordinate with Red Cross to support shelter functions.
CONDITION 4 POTENTIAL HURRICANE THREAT 72-36 HOURS	1. Review plans and procedures. 2. Alert personnel. 3. Coordinate with other departments able to provide support services.	1. Review plans and procedures. 2. Alert personnel. 3. Plan/provide for emergency first aid and medical facilities. 4. Check status of medical equipment/supplies within jurisdiction. 5. Coordinate with other departments/agencies providing similar services i.e. EMS, DFCS, Red Cross.	1. Review plans and procedures with personnel. 2. Alert personnel. 3. Assist in shelter preparation and staffing.
CONDITION 3 24-36 HOURS OR HURRICANE "WATCH"	1. Review emergency assignments with personnel.	1. Dispatch health care staff and supplies to shelters.	1. Review emergency assignments with personnel. 2. Assist with evacuation of nursing homes and other dependent populations. 3. Coordinate with Superintendent of Schools & Red Cross on shelter requirements (food, clothing, shelter staff, etc.).
CONDITION 2 24 HOURS OR HURRICANE "WARNING"	1. Place representative in EOC.	1. Continue dispatching staff to shelters as requested. 2. Report health supply needs to EOC.	1. Assign personnel to assist in shelters as needed. 2. Continue close coordination with Red Cross and County C.D. to assist shelter operations and evacuation.
CONDITION 1 12 HOURS OR LESS	1. Respond as necessary to emergency calls.	1. Continue service in shelters. 2. Ensure sanitary conditions in shelters are maintained. 3. Report health supply shortages to EOC.	1. Assist Red Cross in shelter functions. 2. Assist with evacuation transportation as requested.
RE-ENTRY AND RECOVERY	1. Respond as necessary to emergency calls.	1. Set up temporary medical clinics. 2. Assist in damage assessment. 3. Evaluate and provide to EOC recommendations on health aspects of damaged areas.	1. Continue assistance in shelter operations. 2. Assist in damage assessment. 3. Provide social services.

Attachment 2

Table 2

HURRICANE INCREASED READINESS ACTIONS CHECKS LIST

AGENCY / ACTIONS	BOARD OF EDUCATION	RED CROSS CHAPTER	COUNTY COMMISSION/MAYOR/ADMINISTRATION
CONDITION 5	1. Update internal SOP. 2. Conduct in-house training. 3. Participate in local jurisdictional exercises. 4. Maintain equipment in serviceable condition. 5. Maintain inventory of resources i.e. personnel, equipment, vehicles, and supplies. 6. Conduct joint inspection of shelters with Red Cross and local C.D. to ensure adequacy of facilities.	1. Update internal SOP. 2. Conduct in-house hurricane response training. 3. Participate in local jurisdictional exercises. 4. Maintain inventory of resources i.e. personnel, equipment, vehicles and supplies. 5. Maintain equipment in serviceable condition. 6. Maintain roster of volunteers for shelter staff including managers. 7. Maintain shelter listing & Service agreements. 8. Conduct joint inspection of shelters with Superintendent of schools and local C.D. to ensure adequacy and capacity of facilities. 9. Develop shelter plan for each site.	1. Ensure update of County Hurricane Response Plans. 2. Support exercise to test plan. 3. Meet with department heads and county C.D. to prepare for hurricane season-review responsibilities. 4. Prepare to maintain continuity of government. 5. Encourage public awareness activities.
CONDITION 4 POTENTIAL HURRICANE THREAT 72-36 HOURS	1. Review school plans and procedures with key personnel. 2. Review shelter plans with shelter manager and Red Cross. 3. Check school buses for maintenance & gas all vehicles. 4. Alert personnel and ensure adequate drivers & transportation assistance. 5. Review evacuation routes with bus drivers; provide maps. 6. Review plans for transporting special populations. 7. Coordinate preparations as necessary.	1. Review plans and procedures. 2. Alert personnel. 3. Coordinate preparations with regional Red Cross offices for staff, food and other support services. 4. Establish communication with DFCS, local C.D. and volunteer organizations.	1. Participate in department heads briefing. 2. Provide executive direction and control. 3. Become familiar with damage assessment and reporting procedures.
CONDITION 3 24-36 HOURS OR HURRICANE "WATCH"	1. Close schools if school is in session. 2. Ensure the opening of schools for public shelter & appropriate staff if necessary. 3. Coordinate with DFCS and Red Cross. 4. Coordinate with DFCS and local C.D. to provide transportation for dependent populations.	1. Mobilize personnel and open shelters. 2. Assign shelter staff in coordination with Superintendent and local C.D. 3. Arrange for food to be brought into shelter. 4. Report occupancy estimates to C.D.	1. Stand-by to locate in EOC to provide Direction & Control.
CONDITION 2 24 HOURS OR HURRICANE "WARNING"	1. Continue shelter operations. 2. Continue assistance with evacuation transportation.	1. Carry out shelter operations.	1. Locate in EOC. 2. Activate EBS if necessary.
CONDITION 1 12 HOURS OR LESS "EVACUATION"	1. Continue transportation to shelters. 2. Continue shelter services. 3. Assist in moving medical, food and priority supplies to and among shelters as required and as conditions permit.	1. Continue shelter operations to include feeding, counseling, maintaining communication on storm's progress.	1. Continue monitoring evacuation progress and emergency operations. 2. Locate in alternate EOC if necessary.
RE-ENTRY AND RECOVERY	1. Coordinate transportation needs with other agencies. 2. Phase out shelters when ordered by EOC. 3. Assess damage to school facilities. 4. Document expenses and losses.	1. Support shelter operations as long as necessary. 2. Maintain records and document expenditures. 3. Close shelters as necessary. 4. Assist in provision of temporary housing, food for workers. 5. Coordinate with Salvation Army and other volunteer groups.	1. Make initial damage assessment. 2. Coordinate priorities for recovery. 3. Assist federal/state damage assessment. 4. Request assistance if necessary.

Attachment 2

Table 3

HURRICANE INCREASED READINESS ACTIONS CHECK LIST

AGENCY ACTIONS	COUNTY CIVIL DEFENSE	LAW ENFORCEMENT (SHERIFF/CITY/COUNTY POLICE)	FIRE SERVICE
CONDITION 5 BEGINNING OF HURRICANE SEASON (JUNE 1)	1. Update Hurricane Response Plan. 2. Check Warning system; Update notification rosters. 3. Ensure that shelters are adequate. 4. Release general information to the public (Education/Awareness Program). 5. Meet with department heads to ensure current SOP's. 6. Conduct exercise to test plan. 7. Inventory resources.	1. Update internal SOP including map resources. 2. Conduct in-house hurricane response training. 3. Participate in local jurisdictional exercise. 4. Maintain equipment in serviceable condition. 5. Maintain inventory of resources i.e. personnel, equipment, vehicles. 6. Participate in community awareness efforts.	1. Update internal SOP. 2. Conduct in-house hurricane response training. 3. Participate in local jurisdictional exercise. 4. Maintain equipment in serviceable condition. 5. Maintain inventory of resources i.e. personnel, equipment and vehicles.
CONDITION 4 POTENTIAL HURRICANE THREAT 72-36 HOURS	1. Issue alert to all departments. 2. Review Plans & Procedures with department heads. 3. Review priority lists. 4. Alert EOC staff and prepare EOC for operation. 5. Place communications & warning teams on stand-by alert. 6. Alert damage assessment team. 7. Check equipment and fuel vehicles. 8. Review accounting system to provide for emergency expenditures. 9. Establish contacts with news media. 10. Alert large industries, institutions, hotels/motels, marinas and power plants. 11. Notify Red Cross, Salvation Army and NDTA.	1. Review Plan and procedures. 2. Check equipment and gas vehicles. 3. Maintain communication/coordination with State Patrol and all law enforcement branches.	1. Alert all personnel 2. Review Plans and procedures. 3. Check all equipment gas vehicles and make other preparations as necessary. 4. Coordinate with County C.D. 5. Maintain communication with Georgia Forestry Commission as necessary.
CONDITION 3	1. Issue "Watch" message to all departments. 2. Activate EOC and man 24 hours. 3. Review assignment of EOC staff and personnel. 4. Arrange for phones in EOC, test radios and check auxiliary generators. 5. Maintain coordination/communication with Area 5 GEMA Coordinator. 6. Evacuate nursing homes, jails and other concentrations of dependent population. 7. Notify Red Cross of voluntary evacuation to provide for adequate local shelters. 8. Notify Bulloch County C. D. 9. Provide public information to news media. 10. Begin voluntary evacuation from low-lying areas and mobile homes. 11. Encourage campers and tourists to leave areas, contact motels/hotels.	1. Notify all personnel of "watch." 2. Check generators and extra fuel storage. 3. Review emergency assignments with personnel. 4. Evacuate jails if necessary. 5. Assist motorists evacuating voluntarily. 6. Establish traffic control points. 7. Place mobile communication units on stand-by alert. 8. Report evacuation progress to C.D.	1. Review emergency assignments with personnel. 2. Place all units on stand-by or dispatch as necessary.
CONDITION 2	1. Issue warning to all departments. 2. EOC manned with all appropriate department heads or representatives. 3. Review readiness actions & status of shelters. 4. Strongly urge voluntary evacuation/or issue evacuation order (activate EBS). 5. Establish food supply for EOC.	1. Finalize plans to direct evacuation when ordered. 2. Notify all personnel of "warning" & mobilize forces. 3. Place commander or representative in EOC.	1. Place representative in EOC. 2. Mobilize Personnel. 3. Evacuate fire-fighting equipment if required. 4. Coordinate activities of all units with EOC.
CONDITION 1	1. Evacuation order issued. 2. Notify host county C.D. Directors. 3. Monitor evacuation progress. 4. Maintain open circuit communication with Area 5 GEMA Field Coordinator. 5. Relocate in alternate EOC when necessary.	1. Vehicles with sound equipment dispatched to evacuate areas for warning. 2. Patrol and secure evacuated area and lend assistance as conditions permit. 3. Coordinate communications between shelters, checkpoints and EOC. 4. Move stragglers to best available shelter. 5. Provide rescue assistance as required.	1. Continue assistance as conditions permit.
RE-ENTRY AND RECOVERY	1. Dispatch damage assessment teams. 2. Document disaster-related expenses. 3. Document damage assessment. 4. Coordinate government department activities in recovery in close cooperation with the GEMA, chief elected officials and other agencies. 5. Request recovery assistance if appropriate.	1. Maintain order, prevent looting. 2. Check personnel and equipment; request needed assistance. 3. Control access to evacuated areas. 4. Maintain coordination with GEMA and all law enforcement branches. 5. Issue passes to identified relief personnel.	1. Continue assistance as capabilities permit. 2. Coordinate with outside fire support as needed.

Attachment 2
Table 4

HURRICANE INCREASED READINESS ACTIONS CHECKLIST

AGENCY ACTIONS	SALVATION ARMY	SENIOR CITIZENS' CENTERS
CONDITION 5 BEGINNING OF HURRICANE SEASON (June 1)	1. Update internal SOP. 2. Conduct in-house hurricane response training. 3. Maintain inventory or resources, i.e. personnel, equipment, vehicles, supplies and other resource providers. 4. Coordinate with Civil Defense and Red Cross to support shelter functions and plans for feeding emergency workers.	1. Participate in revising the Disaster Response Plan for Senior Citizens' Centers. 2. Participate in hurricane response training. 3. Conduct hurricane response training in Senior Citizens' Centers for clients and staff. 4. Maintain inventory of resources, i.e. personnel, vehicles, equipment and supplies by county. 5. Arrange to assist in shelter operations and evacuation as appropriate.
CONDITION 4 POTENTIAL HURRICANE THREAT 72-36 HOURS	1. Review plans and procedures with personnel. 2. Alert volunteer staff. 3. Assist in shelter preparation and staffing. 4. Coordinate with Civil Defense to provide necessary food supplies where needed.	1. Review plans and procedures for hurricane response with Center staff. 2. Ensure awareness among Center clients. Contact dependent clients if necessary.
CONDITION 3 24-36 HOURS OR HURRICANE "WATCH"	1. Mobilize personnel. 2. Assist with shelter staffing as requested or appropriate. 3. Provide food to EOC if requested.	1. Provide transportation upon request. 2. Prepare to secure Senior Citizens' Center. 3. Assist in shelter operations as requested.
CONDITION 2 24 HOURS OR HURRICANE "WARNING"	1. Continue emergency assistance as requested.	
CONDITION 1 12 HOURS OR LESS	1. Continue emergency assistance as conditions permit.	1. Close and evacuate Senior Centers. 2. Assist in shelter operations as requested.
RE-ENTRY AND RECOVERY	1. Provide food, clothing and other life support supplies to storm victims and emergency workers in coordination with Red Cross and other relief groups.	1. Assist in the assessment and documentation of damage of AAA sites. 2. Assist the elderly in locating temporary housing, life support needs and other human services.

Attachment 2
Table 3

HURRICANE INCREASED READINESS ACTIONS CHECK LIST

AGENCY ACTIONS	COUNTY CIVIL DEFENSE	LAW ENFORCEMENT (SHERIFF/CITY/COUNTY POLICE)	FIRE SERVICE
CONDITION 5 BEGINNING OF HURRICANE SEASON (JUNE 1)	1. Update Hurricane Response Plan. 2. Check Warning system; Update notification rosters. 3. Ensure that shelters are adequate. 4. Release general information to the public (Education/Awareness Program). 5. Meet with department heads to ensure current SOP's. 6. Conduct exercise to test plan. 7. Inventory resources.	1. Update internal SOP including map resources. 2. Conduct in-house hurricane response training. 3. Participate in local jurisdictional exercise. 4. Maintain equipment in serviceable condition. 5. Maintain inventory of resources i.e. personnel, equipment, vehicles. 6. Participate in community awareness efforts.	1. Update internal SOP. 2. Conduct in-house hurricane response training. 3. Participate in local jurisdictional exercise. 4. Maintain equipment in serviceable condition. 5. Maintain inventory of resources i.e. personnel, equipment and vehicles.
CONDITION 4 POTENTIAL HURRICANE THREAT 72-36 HOURS	1. Issue alert to all departments. 2. Review Plans & Procedures with department heads. 3. Review priority lists. 4. Alert EOC staff and prepare EOC for operation. 5. Place communications & warning teams on stand-by alert. 6. Alert damage assessment team. 7. Check equipment and fuel vehicles. 8. Review accounting system to provide for emergency expenditures. 9. Establish contacts with news media. 10. Alert large industries, institutions, hotels/motels, marinas and power plants. 11. Notify Red Cross, Salvation Army and NDTA.	1. Review Plan and procedures. 2. Check equipment and gas vehicles. 3. Maintain communication/coordination with State Patrol and all law enforcement branches.	1. Alert all personnel 2. Review Plans and procedures. 3. Check all equipment gas vehicles and make other preparations as necessary. 4. Coordinate with County C.D. 5. Maintain communication with Georgia Forestry Commission as necessary.
CONDITION 3	1. Issue "Watch" message to all departments. 2. Activate EOC and man 24 hours. 3. Review assignment of EOC staff and personnel. 4. Arrange for phones in EOC, test radios and check auxiliary generators. 5. Maintain coordination/communication with Area 5 GEMA Coordinator. 6. Evacuate nursing homes, jails and other concentrations of dependent population. 7. Notify Red Cross of voluntary evacuation to provide for adequate local shelters. 8. Notify Bulloch County C. D. 9. Provide public information to news media. 10. Begin voluntary evacuation from low-lying areas and mobile homes. 11. Encourage campers and tourists to leave areas, contact motels/hotels.	1. Notify all personnel of "watch." 2. Check generators and extra fuel storage. 3. Review emergency assignments with personnel. 4. Evacuate jails if necessary. 5. Assist motorists evacuating voluntarily. 6. Establish traffic control points. 7. Place mobile communication units on stand-by alert. 8. Report evacuation progress to C.D.	1. Review emergency assignments with personnel. 2. Place all units on stand-by or dispatch as necessary.
CONDITION 2	1. Issue warning to all departments. 2. EOC manned with all appropriate department heads or representatives. 3. Review readiness actions & status of shelters. 4. Strongly urge voluntary evacuation/or issue evacuation order (activate EBS). 5. Establish food supply for EOC.	1. Finalize plans to direct evacuation when ordered. 2. Notify all personnel of "warning" & mobilize forces. 3. Place commander or representative in EOC.	1. Place representative in EOC. 2. Mobilize Personnel. 3. Evacuate fire-fighting equipment if required. 4. Coordinate activities of all units with EOC.
CONDITION 1	1. Evacuation order issued. 2. Notify host county C.D. Directors. 3. Monitor evacuation progress. 4. Maintain open circuit communication with Area 5 GEMA Field Coordinator. 5. Relocate in alternate EOC when necessary.	1. Vehicles with sound equipment dispatched to evacuate areas for warning. 2. Patrol and secure evacuated area and lend assistance as conditions permit. 3. Coordinate communications between shelters, checkpoints and EOC. 4. Move stragglers to best available shelter. 5. Provide rescue assistance as required.	1. Continue assistance as conditions permit.
RE-ENTRY AND RECOVERY	1. Dispatch damage assessment teams. 2. Document disaster-related expenses. 3. Document damage assessment. 4. Coordinate government department activities in recovery in close cooperation with the GEMA, chief elected officials and other agencies. 5. Request recovery assistance if appropriate.	1. Maintain order, prevent looting. 2. Check personnel and equipment; request needed assistance. 3. Control access to evacuated areas. 4. Maintain coordination with GEMA and all law enforcement branches. 5. Issue passes to identified relief personnel.	1. Continue assistance as capabilities permit. 2. Coordinate with outside fire support as needed.

Attachment 2
Table 4

HURRICANE INCREASED READINESS ACTIONS CHECKLIST

AGENCY ACTIONS	SALVATION ARMY	SENIOR CITIZENS' CENTERS
CONDITION 5 BEGINNING OF HURRICANE SEASON (June 1)	1. Update internal SOP. 2. Conduct in-house hurricane response training. 3. Maintain inventory or resources, i.e. personnel, equipment, vehicles, supplies and other resource providers. 4. Coordinate with Civil Defense and Red Cross to support shelter functions and plans for feeding emergency workers.	1. Participate in revising the Disaster Response Plan for Senior Citizens' Centers. 2. Participate in hurricane response training. 3. Conduct hurricane response training in Senior Citizens' Centers for clients and staff. 4. Maintain inventory of resources, i.e. personnel, vehicles, equipment and supplies by county. 5. Arrange to assist in shelter operations and evacuation as appropriate.
CONDITION 4 POTENTIAL HURRICANE THREAT 72-36 HOURS	1. Review plans and procedures with personnel. 2. Alert volunteer staff. 3. Assist in shelter preparation and staffing. 4. Coordinate with Civil Defense to provide necessary food supplies where needed.	1. Review plans and procedures for hurricane response with Center staff. 2. Ensure awareness among Center clients. Contact dependent clients if necessary.
CONDITION 3 24-36 HOURS OR HURRICANE "WATCH"	1. Mobilize personnel. 2. Assist with shelter staffing as requested or appropriate. 3. Provide food to EOC if requested.	1. Provide transportation upon request. 2. Prepare to secure Senior Citizens' Center. 3. Assist in shelter operations as requested.
CONDITION 2 24 HOURS OR HURRICANE "WARNING"	1. Continue emergency assistance as requested.	
CONDITION 1 12 HOURS OR LESS	1. Continue emergency assistance as conditions permit.	1. Close and evacuate Senior Centers. 2. Assist in shelter operations as requested.
RE-ENTRY AND RECOVERY	1. Provide food, clothing and other life support supplies to storm victims and emergency workers in coordination with Red Cross and other relief groups.	1. Assist in the assessment and documentation of damage of AAA sites. 2. Assist the elderly in locating temporary housing, life support needs and other human services.

ATTACHMENT 3

NEWS MEDIA CALL LIST

ATTACHMENT 3

TELEVISION

WSAV-TV
ph. (912) 236-3535
Savannah, GA

WTOC-TV
ph. (912) 232-0127
Savannah, GA

WJCL-TV
ph. (912) 925-0022
Savannah, GA

WTLV-TV
ph. (904) 354-1212
Jacksonville, FL

WJKS-TV
ph. (912) 641-1700
Jacksonville, FL

RADIO

WGEC Radio Station
ph. (912) 754-6486
Springfield, GA

WQQT Radio Station
ph. (912) 232-4812
Savannah, GA

WSOK Radio Station
ph. (912) 232-3322/23/24
Savannah, GA

WKBX Radio Station
ph. (912) 879-1529
Savannah, GA

WGML Radio Station
ph. (912) 368-3399
Hinesville, GA

RADIO

WSBI/WGIG Radio Station
ph. (912) 265-3870
(912) 264-9447
Brunswick, GA

WMOG Radio Station
ph. (912) 265-5980
Brunswick, GA

WPIQ/WYNR Radio Station
ph. (912) 264-3820
Brunswick, GA

WSOJ Radio Station
ph. (912) 427-2003
Jesup, GA

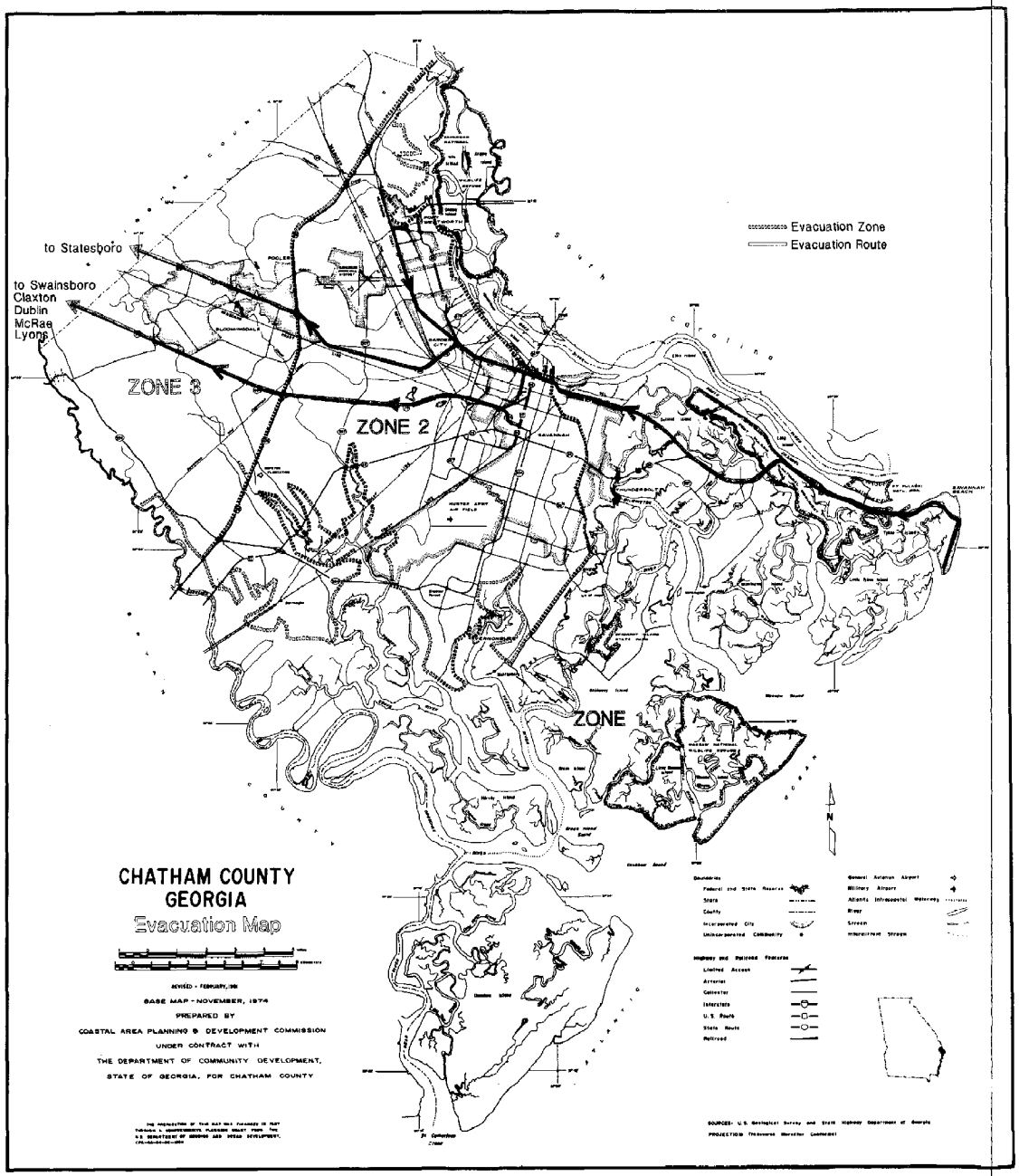
WLOP Radio Station
ph. (912) 427-3711
Jesup, GA

PRIMARY AREA EBS

WJCL-TV Station
ph. (912) 925-0022
Savannah, GA

ATTACHMENT 4

EVACUATION MAP FOR CHATHAM COUNTY


Evacuation Zone
Evacuation Route
to Statesboro
to Swainsboro
Claxton
Dublin
McRae
Lyons
ZONE 3
ZONE 2
ZONE
CHATHAM COUNTY
GEORGIA
Evacuation Map
REVISED - FEBRUARY, 1981
BASE MAP - NOVEMBER, 1974
PREPARED BY
COASTAL AREA PLANNING & DEVELOPMENT COMMISSION
UNDER CONTRACT WITH
THE DEPARTMENT OF COMMUNITY DEVELOPMENT,
STATE OF GEORGIA, FOR CHATHAM COUNTY
SOURCES: U.S. Geological Survey and State Highway Department of Georgia
PROJECTION: Transverse Mercator Conformal

ATTACHMENT 5

HURRICANE RESPONSE SURVEY

SURVEY METHODOLOGY

At the outset, information pertaining to anticipated Chatham County citizen preferences regarding several facets of the storm preparedness and response process was obtained by utilizing data gathered by the Coastal APDC in a large survey of Glynn County residents. The optimum process would be to conduct a separate citizen survey of Chatham County residents; however, neither time nor funding was available for this purpose. Additionally, the similarities between Chatham and Glynn Counties (urban coastal counties with developed barrier islands and similar socio-economic characteristics) were judged to be sufficiently adequate to make the Glynn County data transferable to the Chatham County area.

The methodology for completing the Glynn County survey is presented below to provide an overview of the sampling process, statistical accuracy, and surveying techniques.

A systematic random sampling technique was used to define the Glynn County sample population to be surveyed. This procedure consisted of randomly selecting these residential listings from each page in the Brunswick, Jekyll Island, St. Simons Island, and Sea Island telephone directory of August, 1980.

Survey responses were separated into two groups based on the geographic location of place of residence as identified on the Glynn County Storm Evacuation Map. This map separates the county into three distinct districts (Zone 1, 2 and 3) based on flood potential. Zone 1 includes the barrier islands and lower lying portions of the mainland. Zone 2 encompasses the intermediate topographic elevations within the county. Zone 3 covers the western portion of the county, with higher elevations where there is no flooding potential. It should be noted that potential respondents in Zone 3 were intentionally excluded from the survey since the primary purpose of the survey is to determine predictive reactions of local residents that are most vulnerable to flooding.

A total sample size of 234 telephone listings was identified in Zones 1 and 2. Of this total, 38 listings were unusable because either: (1) the respondent declined to participate in the survey, or (2) the telephone number was inoperative. This yielded a total of 196 survey respondents. With this sample size (which represents separate household units in Glynn County) a "confidence interval" of 95% was established. This means that given a sample size of 196 households (from a total of 21,266* occupied units in the County) we can be 95% confident that the maximum error between the response of the sample and the preferences of the entire population is ±7%. This level of accuracy was deemed appropriate for this survey. The reader is cautioned that the conclusions drawn from the data obtained from the survey should be tempered with the possibility

that there could be as much as a +7% deviation between the sample's response to a particular question and the response that could be obtained from surveying all 21,266 occupied households.

The telephone survey was conducted by a temporary staff person employed by the Coastal APDC. This staff person was provided one and one-half days of training in telephone survey techniques.

A maximum of four attempts (calls during weekdays) were made at contacting each household. The first call to each possible respondent was conducted between the hours of 8:30 a.m. and 4:30 p.m. If no contact was made on the initial call, the second attempt was made in the evening hours. This procedure was replicated until either contact with the household was made or the established maximum of four attempts was exhausted. The duration of the survey period was approximately three weeks during June, 1981.

Once the telephone survey was completed, the survey responses were separated into two categories - (1) respondents from Zone 1 (total of 92) and (2) respondents from Zone 2 (total of 104). The county's total population in each of these two zones was then derived (Zone 1 = 23,855, and Zone 2 = 30,118). The rationale for defining both the survey respondents and the population by their geographic location is to identify survey data that can be used to correlate to the entire population of that zone

*Assumes a 5% vacancy rate in the total housing units in Glynn County (22,358 x .95 = 21,266).

Presented below are the results of the Glynn County sample citizen survey transferred to the Chatham County population. The Glynn County sample survey responses are expressed in percentages within the first columns under the Zone 1 and Zone 2. These percentages were applied to the Chatham County population totals for both Zones 1 and 2. This yields the expected number of Chatham County residents that would have similar responses to the Glynn County survey sample.

HURRICANE RESPONSE SURVEY

CHATHAM COUNTY

Question #1

Assuming everyone is home and were to be ordered by a governmental authority to evacuate, how soon could you be ready and would you leave?

	Zone 1		Zone 2	
	% of Glynn Co. Survey Respondents	No. of Chatham County Residents	% of Glynn Co. Survey Respondents	No. of Chatham County Residents
a. immediately	80%	31,660	94%	146,701
b. within 2 hours	16%	6,332	4%	6,243
c. when conditions are too severe to stay	1%	396	2%	3,121
d. never	1%	396	0%	0
e. uncertain	2%	792	0%	0
Total to Evacuate (a + b + c)	97%	38,388	100%	156,065

Question #2

If evacuation was only recommended and not ordered, would you leave?

	Zone 1		Zone 2	
	% of Glynn Co. Survey Respondents	No. of Chatham County Residents	% of Glynn Co. Survey Respondents	No. of Chatham County Residents
a. yes	86%	34,034	92%	143,579
b. no	12%	4,749	7%	10,925
c. uncertain	2%	792	1%	1,561

Question #3

After leaving your home during an evacuation, where would you go?

	Zone 1		Zone 2	
	% of Glynn Co. Survey Respondents	No. of Chatham County Residents	% of Glynn Co. Survey Respondents	No. of Chatham County Residents
a. Red Cross Shelter	37%	14,204	52%	81,154
1. within the county	0%	0	21%	17,042
2. outside the county	9%	1,278	6%	4,469
3. where instructed by local officials	85%	12,074	69%	55,997
4. uncertain	6%	852	4%	3,246
b. Home of friend or relative	20%	7,678	26%	40,577
1. within the county	22%	1,689	0%	0
2. outside the county	78%	5,989	89%	36,114
3. in another coastal county	0%	0	11%	4,463
c. Hotel or motel	39%	14,970	19%	29,652
1. within the county	3%	449	0%	0
2. outside the county	80%	11,976	75%	22,239
3. location uncertain	17%	2,545	25%	7,413
d. Other	4%	1,536	3%	4,682

Question #4

How long have you lived in the county?

	Zone 1		Zone 2	
	% of Glynn Co. Survey Respondents	No. of Chatham County Residents	% of Glynn Co. Survey Respondents	No. of Chatham County Residents
a. Less than 10 years	45%	17,808	20%	31,213
b. 10-30 years	37%	14,643	45%	70,729
c. 30-60 years	17%	7,124	29%	45,259
d. More than 60 years	0	0	6%	9,364

Question #5

Have you ever lived in an area that experienced the direct hit of a major hurricane?

	Zone 1		Zone 2	
	% of Glynn Co. Survey Respondents	No. of Chatham County Residents	% of Glynn Co. Survey Respondents	No. of Chatham County Residents
a. Yes	5%	1,979	8%	12,485
b. No	92%	36,409	87%	138,898
c. Uncertain	3%	1,187	3%	4,682

ATTACHMENT 6

SHELTERS

SHELTERS

The following shelters in Chatham County have been designated to be opened by the County Red Cross Chapter:

SHELTER NAME	LOCATION	ELEVATION	CAPACITY	SHELTER MANAGER/ALERNATE	PHONE
1. Savannah High School	500 Washington Ave.	15'±	2500	1. Mr. Joel Formby, Principal	(h) 354-0448 (o) 238-5271
				2. Mr. John Bunger, Custodian	(h) 925-9604 (o) 238-5271
2. Shuman Middle School	415 Goebel Avenue	25'±	610	1. Mr. Raleigh Bryant, Principal	(h) 352-3715 (o) 233-0206
				2. Mr. Willie Harris, Custodian	(h) 232-3213 (o) 233-0206
Herty Elementary Back-up for Shuman Middle School	1805 Skidaway Road	32'±	532	1. Mrs. Sarah Minchew, Principal	(h) 354-4198 (o) 233-3424
				2. Mr. William Blount, Custodian	(h) 233-0274 (o) 233-3424
3. Bartlett Middle School	207 Montgomery Cross-roads	16'±	841	1. Mr. Alexander Luten, Principal	(h) 354-5829 (o) 927-3411
				2. Mr. Willie Baker, Custodian	(h) 236-4694 (o) 927-3411
Hesse Elementary Back up for Bartlett Middle School	9116 Whitfield Avenue	25'±	800	1. Mrs. Nelle Herndon, Principal	(h) 354-7504 (o) 355-2313
				2. Mr. Ezell Jones, Custodian	(h) 233-1033 (o) 355-2313
4. White Bluff Elementary School	9902 White Bluff Road	25'±	900	1. Mrs. Mary F. Walsh, Principal	(h) 925-4596 (o) 927-1401
				2. Mr. John Gasway, Custodian	(h) 234-0508 (o) 927-1401
5. Myers Middle School	2316 Brevard Circle	25'±	1,110	1. Ms. Frances Wong, Principal	(h) 238-4179 (o) 354-0221
				2. Mr. David Stafford, Custodian	(h) 354-9443 (o) 354-0221

Attachment 6

SHELTER NAME	LOCATION	ELEVATION	CAPACITY	SHELTER MANAGER/ALERNATE	PHONE
Savannah High School Back up for Mayers Middle School					
6. Groves High School	100 Wheathill Road	20'±	1,200	1. Mr. Frank Tison, Principal	(o) 964-6511 (h) 925-0226
				2. Mr. James Sherman, Custodian	(o) 964-6511 (h) 233-1659
7. Mercer Middle School	201Rommel Avenue	20'±	986	1. Mrs. Virginia DeLoach, Principal	(o) 964-4338
				2. Custodian	(o) 964-4082 (h)
8. Sprague Elementary	50 Byck Avenue	15'±	600	1. Mr. Robert Priestley, Principal	(o) 964-5928 (h) 964-4489
				2. Mr. Morris Shell, Custodian	(o) 964-5928 (h) 964-6016
9. Gould Elementary Back up for Sprague Elem.	4910 Pineland Avenue	34'±	784	1. Mrs. Manner Kellam, Principal	(o) 234-4275 (h) 964-1339
				2. Mr. James Wright, Custodian	(o) 234-4275 (h) 234-6140

ATTACHMENT 7

DAMAGE ASSESSMENT TEAM LIST

Attachment 7

DAMAGE ASSESSMENT TEAM #____

Department or Agency	Name	Phone	Area of Responsibility
			TEAM LEADER
Agriculture Extension Agent			
Engineer			
Fire Department			
Health Department			
Police Department			
Tax Assessor			
Public Works			
Architect/Engineer			
Construction Company			
Insurance Appraiser			
Private Utilities			
Other (Specify)			

ATTACHMENT 8

HAZARD ASSESSMENT

ATTACHMENT 8

Hazard Assessment

In order for coastal communities to realistically prepare for hurricane response, it is necessary to assess the potential danger associated with such a coastal storm. It is then possible to plan for the types of response activities that will be required of local government as well as the general public.

Coastal Georgians do not have to speculate about the effects of a major storm. In 1898 a hurricane made landfall in the Savannah area. As a result, most of the barrier islands were inundated, and flood waters were 6 feet deep in the streets of Brunswick. That storm was estimated to have been a Category 3 hurricane.

Figure 1 shows the tracks of 25 storms which have affected coastal Georgia between 1870 and 1980. Table 1 shows the dates, windspeed and barometric pressure of those storms. Windspeeds do not reflect maximum strength a storm may have reached, but windspeed at the time the storm began to influence the coast of Florida, Georgia or South Carolina.

It has been said that the probability of a tropical storm actually striking the Georgia coast is decreased by the curvature of the coastline. While it appears that the majority of landfalling storms have occurred near Savannah (the seaward protrusion of the northern coastline curve), significant storms have also made landfall in other portions of the coast. Neither the National Weather Service nor the National Hurricane Center offers scientific support that Georgia's coastline curvature decreases the risk of hurricane occurrence.

Storm Hazard Analysis

The coastal area of Georgia is susceptible to the ravages of tropical storms known as "hurricanes". These storms bring with them damage from wind and water. We understand the damage caused by winds because of the sustained winds of the hurricane and the tornadoes spawned by the storm. We also understand the damages by water due to the flooding caused by heavy rains associated with the storm. However, in coastal regions there is another factor of water damage that we must contend with -- coastal flooding due to tidal surge generated by the storm and the initial wave action caused by the surge striking the shore.

There is a point in time when state or local authorities must order the evacuation of low lying coastal areas to allow all vulnerable residents to get to safe shelter before the hazards of the hurricane arrive. This point in time relative to hurricane landfall has been an unknown, yet a very critical link in preparing for a hurricane. The period of time in question lies between the arrival of the damaging forces and the point in time when an evacuation order must be issued to safely complete the evacuation.

Since 1950, the National Hurricane Center (NHC) has significantly improved its ability to forecast and warn the public of approaching hurricanes through the use of computers, satellites and other forms of technology. However, over the past five years, the NHC has reached a plateau in forecasting and warning capabilities. Based upon present estimates of probable future technological advances, NHC does not foresee better hurricane forecasting in the near future.[1] This means that the amount of official evacuation lead time that can be provided to local areas by NHC, based on a high degree of specific landfall probability, is not expected to increase in the foreseeable future.

Because it is still mostly rural in nature and because the urban areas are not very densely populated, the vulnerable areas of coastal Georgia can still be evacuated within the 12 daylight hours that the NHC strives to provide. Continued population growth in hurricane-vulnerable areas will naturally require longer evacuation times.

Longer evacuation times mean that evacuation orders must be issued much earlier in relation to hurricane landfall. Hurricanes often travel on irregular paths toward landfall. Consequently, the earlier the evacuation order is issued, the more the probability that the storm will turn and miss the originally forecasted point after that area's evacuation has taken place. Hence, an ultimately unnecessary evacuation will have taken place and the response agency will be accused of "crying wolf." However, because of the large amount of people now living in hurricane-vulnerable areas, the "crying wolf" situation is one that must now be accepted as a necessary precaution for areas of intensive coastal residential development.

History of Hurricane Activity

Technically, the duration of the Atlantic hurricane season is defined as 1 June through 30 November. The majority of the hurricanes affecting the Georgia coast have occurred during August, September, and October.

Table 2 gives a brief summary of the effects of hurricane activity along the Georgia Coast.

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[1]Richard A. Frank, Administrator, National Oceanic and Atmospheric Administration, "Living with Coastal Storms: Seeking an Accommodation", Keynote Address Presented to the National Hurricane Conference, May 29-31, 1979, Orlando, Florida.

TABLE 1

STORMS AFFECTING COASTAL GEORGIA

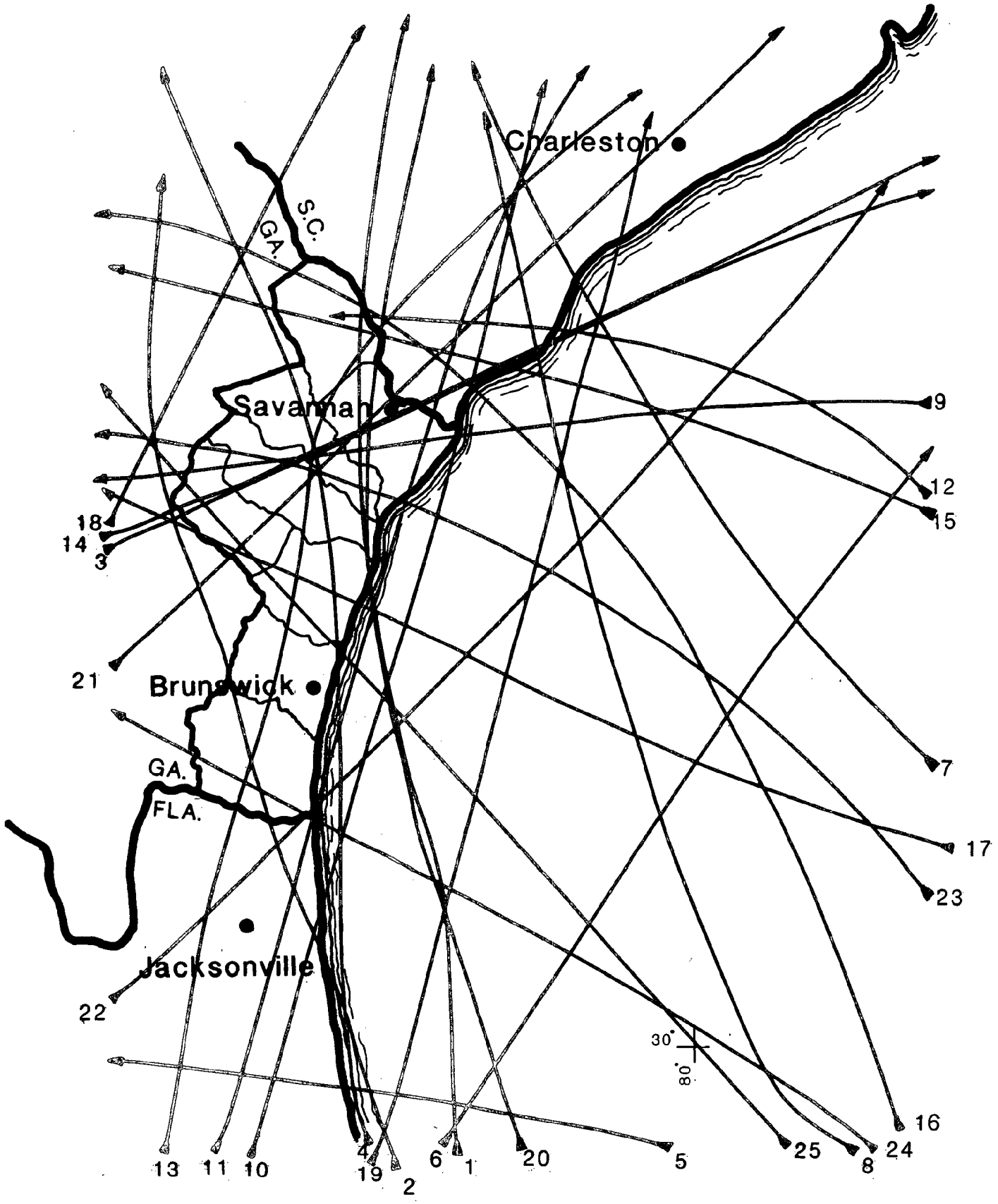
1870 - 1980

TRACK NO.	NAME	DATE OF COASTAL INFLUENCE	WIND SPEED	BAROMETER PRESSURE
1	David	4 Sep 79	085	0970
2	Abby	6 Jun 68	050	0997
3	Alma	10 Jun 66	045	*
4	Cleo	29 Aug 64	045	0999
5	Dora	10 Sep 64	100	0964
6	Donna	11 Aug 60	090	0970
7	Gracie	29 Sep 59	120	0950
8	Able	30 Aug 52	085	*
9	No name	15 Oct 47	075	0973
10	No name	17 Sep 45	050	0990
11	No name	19 Oct 44	060	0978
12	No name	11 Aug 40	065	0975
13	No name	17-18 Sep 28	075	0974
14	No name	16 Aug 24	040	*
15	No name	28 Aug 11	055	0983
16	No name	30 Aug - 1 Sep 1898	085	*
17	No name	2 Oct 1898	085	*
18	No name	29 Sep 1896	080	*
19	No name	27 Sep 1894	070	*
20	No name	27-28 Aug 1893	095	*
21	No name	15-16 Jun 1893	055	*
22	No name	10-11 Oct 1888	075	*
23	No name	10-11 Oct 1888	075	*
24	No name	27 Aug 1881	*	*
25	No name	24 Aug 1871	*	*

* Data not available

Source: National Hurricane Center

Figure 1


Charleston
S.C.
GA.
Savannah
Brunswick
GA.
FLA.
Jacksonville
30°
80°
1
2
3
4
5
6
7
8
9
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11
12
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TABLE 2

Summary of

HURRICANE ACTIVITY AFFECTING GEORGIA COAST

1881 - August 21-29. Brunswick escaped damage, but Savannah was hard hit and damage was heavy on Tybee and other coastal islands near Savannah. Winds were estimated at 80 mph after measuring instrument blew away; barometer went to 29.08 inches and remained at that reading for 20 minutes. Damage throughout the city was extremely heavy and over 300 lives were lost, and nearly 100 vessels wrecked on the coast. (Carter)

700 lives were lost (Sugg, Pardue and Carrodus, 1971)

1893 - August 22-30. "Great hurricane" hit Georgia and South Carolina. Huge smashing hurricane waves washed over islands and houses and beaches crowded with vacationing people. A thousand lives were lost; corpses were found in the mud of rice fields. Whole families were killed. Damage to property was estimated up to 10 million dollars. City of Charleston was a wreck. (Douglas)

Wind hit 72 mph and barometer reached low of 28.31 inches. Nearly all buildings on Tybee were damaged and the railroad to the island was destroyed. (Carter)

"News reached the city from Harris Neck on Thursday that Noda Spaulding, his son and three other colored men, had been missing since Sunday's storm and it was thought they were capsized and drowned while on their way from Sapelo to their home or Bruro River in a small sail boat. The boat was found several days ago on Creighton Island badly wrecked. It is generally believed that all five occupants of the boat went down during the storm as nothing has been heard from any of them since." (The Darien Gazette, Vol. 20, No. 19, Sept. 2, 1893)

"The great storm damaged the rice crop of Georgia and South Carolina 50 percent or more. The loss will amount to hundreds of thousands of dollars. This ought to make what is left of the crop sell at a good figure." (The Darien Gazette, Vol. 20, No. 20, Sept. 9, 1893)

1896 - October 2-3. This was an unusual storm in that it was brief but violent. It maintained its force far inland. Winds of 75 mph were reported in Savannah and damage was heavy all along the coast.

1898 - August 30 - September 1. The first of two hurricanes to hit the Georgia coast in little more than a month did most of its damage in the Savannah area. Winds there were recorded at 72 mph and were estimated at 100 mph at Tybee Island. Literally hundreds of buildings were wrecked, roads and railroads were impassable, and the rice crop was nearly a total loss.

1898 - September 25 - October 6. Brunswick was battered for 18 hours as the storm approached. Storm tides of about 8 feet inundated Brunswick. Water heights were reported in an 1898 issue of the Monthly Weather Review

at 13 feet above the mean high water mark at Darien and 18 feet at the Sapelo Island lighthouse. An estimated 200 lives were lost. Property damage was reported at $1,000,000 for Brunswick, Darien and the surrounding area. Trees, fences, and houses were down as far as 70 miles inland. The rice crop that survived the preceding storm was totally lost.

1911 - August 23-30. The highest winds of record in Georgia were experienced in this storm at 88 mph. Record rainfall was recorded at 18 inches in 17 hours in southern Charlton County. Damage was light.

1928 - September 17. This is the only storm on record to have crossed the McIntosh County coast. The storm's track crossed Florida and moved out to sea through McIntosh County. Damage in Georgia was light.

1940 - August 5-15. Winds of 73 mph were recorded in Savannah but wind damage resulted as far inland as Dublin.

1944 - October 12-23. This storm brought unusually high and destructive tides with winds of less than hurricane intensity (gale force). In Brunswick a shipyard was wrecked, timber stands were down throughout the coast and roofs were removed from buildings.

1947 - October 9-16. A sustained windspeed of 77 mph with gusts to 95 mph were recorded in Savannah during this storm. Losses were heavy in the Savannah area and total losses in the coast area were estimated at $2,000,000.

Winds at Savannah Beach were estimated at 100 mph and pressure dropped to 28.77 inches. More than 1,500 buildings were damged; total coastal area damage exceeded $2,000,000. (Carter)

1949 - August 27-28. Hurricane force winds struck along coast; rainfall was heavy, exceeding 5 inches in 24 hours. Damage was estimated at $750,000. (Carter)

1950 - September 6-7. Storm caused considerable damage along coast; extremely heavy rainfall in Brunswick 9.22 inches in 24 hours. (Carter)

1950 - October 18-19. Heavy losses along coast occurred where high tides severely battered and undermined some properties. One drowning occurred in heavy seas near Brunswick. Crops as far inland as 100 miles were greatly damaged by torrential rains. (Carter)

1954 - October 5-18. HAZEL. "The mass evacution...saved thousands of lives. The problem, on those endless island beaches north from Georgia, is that they are connected with the mainland by bridges or causeways only at long intervals. To escape, people must ride for miles along roads paralell to the sea already storming up the sands. The heavy rains fill the roads. The rising winds fret and worry at exposed cars, even on the bridges. People were forced to abandon their cars in sand flowing like water, were exposed to sand-blast,

rain-blast, wind blast." (Douglas)

1959 - September 29. GRACIE. Damage of $500,000 resulted from winds; electric and telephone lines were downed causing two deaths and injuries from contact with wires. (Carter)

1960 - August 29-September 13. DONNA. Hit Florida and after turning back to Atlantic Ocean headed north to pummel the coasts of Georgia and South Carolina, plunging ashore at Cape Fear, N.C. (Helm)

1964 - August 28-29. CLEO. Generally heavy rain and winds caused $300,000 damages. Flood waters caused evacuation of low lying homes in Savannah and Augusta. Once man was drowned near Brunswick while trying to secure his boat. (Carter)

1964 - September 9-12. DORA. Ninety mph winds and torrential rains and high tides caused heavy beach erosion including undermining and washing away of beach property. Hundreds of trees blew down damaging houses, autos, and utility lines, interrupting service to 100 percent in several areas. Damages were estimated at $8,000,000. (Carter)

Former dairy barn on Butler Island was under water. Winds were very destructive, blowing down many trees and power lines damaging many homes. Pine Harbor and Belleville were hard hit. Darien was without lights and water for several days. A small aircraft crashed near Darien airport, killing the pilot, during return trip to Darien and wind gusts and heavy rain. (The Darien News. Vol. 14, No. 17, Sept. 17, 1964)

1966 - June 4-14. ALMA. After hitting west coast of Florida went into Gulf, then turned and hit Florida Panhandle, continued northeast and gradually faded as it crossed land and moved out into the Atlantic near Savannah.

1968 - June 6-7. ABBY. Gale force winds and heavy rains hit coastal area. Utility lines were down and minor flooding occurred. (Carter)

1979 - September 4. DAVID. Hurricane David was a storm of minimal intensity (74 mph). Damage was light in the coastal area partially due to the rapid forward movement of the storm. The greatest damage was incurred at Savannah and in coastal Liberty County as the storm made landfall in Bryan County. Damage incurred at Colonel's Island in Liberty County was attributed to a tornado spawned by the storm as well as a change in the direction which caused water to back up in St. Catherine's sound.

ATTACHMENT 9

EMERGENCY PUBLIC INFORMATION

PRE-EMERGENCY INFORMATION

EMERGENCY INFORMATION

ATTACHMENT 9

HURRICANE SURVIVAL

Family Action Guidelines

Hurricanes and Tropical Storms originate in the Atlantic Ocean, Gulf of Mexico and Caribbean Sea. On an average, hurricanes are large, powerful storms that have a counterclockwise wind and cloud circulation of 74 MPH or greater. The more intense hurricanes may have gusts up to 200 MPH or more.

Georgia, with a coastline of 112 miles, is very susceptible to hurricanes. Nearly 350,000 residents live on or near our coast, and many of them have never experienced the forces of a hurricane or tropical storm. It is imperative that you and your family establish an emergency plan and review it periodically, considering that you may have to alter it due to changing conditions.

The following information can act as a checklist in making your plans. Know the meaning of terms used by the National Weather Service. Then consider what to do when a "Hurricane Watch" or "Hurricane Warning" is given, what to do before and during the hurricane and what action to take after the all clear is given. Special instructions are included if it is necessary for you to evacuate to an emergency shelter and for those who live in and are responsible for mobile homes and high-rise apartment buildings.

KNOW THESE TERMS AND DEFINITIONS

USED BY THE NATIONAL WEATHER SERVICE:

Tropical Disturbance	A moving area of thunderstorms in the tropics.
Tropical Depression	An area of low pressure, rotary circulation of clouds and winds to 38 MPH.
Tropical Storm	Counterclockwise circulation of clouds and winds 39 MPH - 73 MPH. The storm is given a name.
Hurricane	When a tropical storm reaches winds of 74 MPH or more it is classified as a hurricane.
Advisory	A method for disseminating hurricane and storm data to the public every 6 hours. Small craft warnings are released as necessary.
Special Advisory	Warning given anytime there is a significant change in weather conditions or change in warnings.
Intermediate Advisory	A method of updating regular advisory information every 2 to 3 hours as necessary.
Gale Warning	Wind speed of 39-54 MPH expected.
Storm Warning	Wind speed of 55-73 MPH expected.
Hurricane Watch	A hurricane <u>may threaten</u> your area within 36 hours.
Hurricane Warning	A hurricane <u>is expected</u> to strike your area within 24 hours or less.
Tornado Watch	Tornadoes and severe thunderstorms are possible in your area.
Tornado Warning	Tornado detected in your area, TAKE SHELTER!
Storm Surge	The strong winds associated with hurricanes and tropical storms cause the sea level to rise above normal tidal heights, with giant wind-driven waves and unpredictable currents, sometimes covering 50 miles.

A hurricane's strength is described by five categories. This is called the SAFFIR-SIMPSON HURRICANE SCALE:

CATEGORY ONE: Winds of 74 to 95 miles per hour. Damage primarily to shrubbery, tree foliage and unanchored mobile homes. No real damage to other structures. Some damage to poorly constructed signs. And/or: storm surge 4 to 5 feet above normal. Low lying coastal roads inundated, minor pier damage, some small craft in exposed anchorage torn from moorings.

CATEGORY TWO: Winds of 96 to 110 miles per hour. Considerable damage to shrubbery and tree foliage. Some trees blown down. Major damage to exposed mobile homes. Extensive damage to poorly constructed signs. Some damage to roofing material of buildings. And/or: storm surge of 6 to 8 feet above normal. Coastal roads and low lying escape routes inland cut by rising water 2 to 4 hours before arrival of hurricane center. Considerable damage to piers. Marinas flooded. Small craft in unprotected anchorages torn from moorings. Evacuation of some shoreline residences and low-lying areas required.

CATEGORY THREE: Winds of 111 to 130 miles per hour. Foliage torn from trees, large trees blown down. Practically all poorly constructed signs blown down. Some damage to roofing materials of buildings; some window and door damage. Some structural damage to small buildings. Mobile homes destroyed. And/or: storm surge 9-12 feet above normal. Serious flooding at coast and many smaller structures near coast destroyed. Larger structures near coast damaged by battering waves and floating debris. Low-lying escape routes inland cut by rising water 3 to 5 hours before hurricane center arrives. Flat terrain 5 feet or less above sea level flooded inland 8 miles or more. Evacuation of low lying residences within several blocks of shoreline possibly required.

CATEGORY FOUR: Winds of 131 to 155 miles per hour. Shrubs and trees blown down, all signs down. Extensive damage to roofing materials, windows and doors. Complete failure of roofs on many small residences. Complete destruction of mobile homes. And/or: storm surge 13 to 18 feet above normal. Flat terrain 10 feet or less above sea-level flooded inland as far as 6 miles. Major damage to lower floors of structures near shore due to flooding and battering of waves and floating debris. Low-lying escape routes inland cut by rising water 3 to 5 hours before hurricane center arrives. Major erosion of beaches. Massive evacuation of all residences within 500 yards of shore possibly required, and of single-story residences on low ground within 2 miles of shore.

CATEGORY FIVE: Winds greater than 155 miles per hour. Shrubs and trees blown down. considerable damage to roofs of buildings; all signs down. Very severe and extensive damage to windows and doors. Complete failure to roofs of many residences and industrial buildings. Extensive shattering of glass in windows and doors. Some complete building failures. Small buildings overturned or blown away. Complete destruction of mobile homes. And/or: storm surge greater than 18 feet above normal. Major damage to lower floors of all structures less than 15 feet above sea level within 500 yards of shore. Low lying escape routes inland cut by rising water 3 to 5 hours before hurricane center arrives. Massive evacuation of residential areas on low ground within 5 to 10 miles of shore possibily required.

AT THE BEGINNING OF HURRICANE SEASON (JUNE)

- Learn the storm surge history and elevation of your area
- Learn safe routes inland
- Determine where you will go if evacuation becomes necessary
- Determine where you will move your boat in an emergency
- Trim back dead wood from trees
- Check for loose rain gutters and down spouts
- If shutters do not protect windows, stock plywood, pressboard and masking tape
- Take an inventory of your personal property for insurance purposes and store it in a waterproof place
- Review your insurance policies, and take advantage of flood insurance, making sure that you are covered both for wind and water damage
- Prepare a disaster kit. Include emergency lighting and make sure you have a good portable radio with fresh batteries
- Purchase a can of lime to sterilize garbage and refuse before the hurricane strikes
- Keep family car in good repair

DISASTER DIET

SHOPPING LIST FOR THREE DAYS MENUS

Most of the canned food items listed are available in the common one-pound size can. Although many can labels consider a one-half cup portion as one serving, homemakers can better judge the number of servings per can by their family's appetites.

Basic Shopping List

1 box of 12 one-quart whole dry milk envelopes or
10 one-quart nonfat dry milk envelopes
2 pound package of assorted cream-filled cookies
1 pound package of enriched saltine crackers
1 pound package of graham (whole wheat) crackers
3 boxes enriched dry cereals
6 1-pound cans vegetables
3 1-pound cans fruit
9-12 packages of instant pudding

Economy is the other major consideration in choosing foods for Disaster Diet Kits. The following food lists include available low-cost non-perishable and nutritional food items.

Non-Perishable Main Dish Items/Canned Food

Beef chili with beans
Chicken a la king
Chicken and dumplings
Chicken Stew
Codfish cakes
Corned beef
Ham loaf
Macaroni and Cheese
Pork and Beans
Pork luncheon loaf
Refried beans
Tuna

Vegetables/Canned Food

Beans, all types
Black-eyed peas
Carrots
Corn
Green Peas
Hominy
Mixed vegetables
Mustard greens
Okra with tomatoes
Spinach

Vegetables (cont'd)

Sweet potatoes, yams
Turnip greens
Zucchini

Fruits and Juices/Canned

Apricots
Peaches
Prunes
Fruit Juices

Dehydrated Foods*

Instant breakfasts
Instant chocolate drink powder
Instant puddings
Nonfat dry milk powder
Whole dry milk powder

Ready-to-eat Foods

Bottled hot sauce
Bottled, sealed salad dressing
Catsup
Corn Chips
Cookies made from enriched flours
Dry Cereals
Enriched saltine crackers
Evaporated milk
Graham (whole wheat) crackers
Mustard
Packaged taco shells
Peanut Butter
Preserves
Raisins
Salt, pepper
Sealed tartar sauce
Spanish peanuts
Sugar, honey
Vinegar
Whole wheat or enriched snack crackers
Worcestershire sauce

*Requiring only the addition of water or some form of reconsituted milk.

Disaster Kit

A disaster kit should include the following non-food items stored in a plastic

dishpan for emergency use:

Eating and cooking utensils
Manual can opener
Napkins and towels
Soap
Flashlight and batteries
Dishcloth
Matches in a watertight container
Candles

Also, plan for water (1 quart per person per day for drinking)
Sanitary needs (diapers, etc.)
Medications (prescriptions)
Transister radio and batteries
Bedding
Clothing
Portable ice chest

EMERGENCY PHONE NUMBERS THAT CAN HELP YOU

Call only in case of an emergency!

CIVIL DEFENSE _____

AMERICAN RED CROSS _____

LOCAL POLICE _____

HIGHWAY PATROL _____

COUNTY SHERIFF _____

EMERGENCY RESCUE _____

FAMILY DOCTOR _____

GAS OR FUEL COMPANY _____

ELECTRIC COMPANY _____

WATER COMPANY _____

HOSPITAL _____

BLOOD BANK _____

For general information tune to WJCL 96.5 FM.

Prepared in cooperation with:
U. S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Weather Service
National Ocean Survey
Coastal Hazards Program
AMERICAN RED CROSS
GEORGIA EMERGENCY MANAGEMENT AGENCY
COASTAL AREA PLANNING AND DEVELOPMENT COMMISSION
FEDERAL EMERGENCY MANAGEMENT AGENCY
FLORIDA MARINE ADVISORY PROGRAM
CHATHAM COUNTY CIVIL DEFENSE

BEFORE A HURRICANE

"HURRICANE WATCH"

(What to do when a Hurricane may threaten your area within 36 hours)

- Check often for official bulletins on radio station WJCL (96.5 FM)
- Keep a full tank of fuel in your car or boat and check your battery
- Check mobile home tie-downs
- Moor small craft or move to safe shelter
- Stock up on canned provisions and non-perishable foods.
- Check supplies of special medicines and drugs
- Check batteries for radio and flashlights and your supply of candles or lantern fuel
- Secure furniture and other loose materials outdoors. Small boat trailers should be tied down securely with the boats lashed to them and filled with water
- Put together a portable disaster survival kit if you haven't done so already
- Obtain adequate supply of special or prescription medicines, baby food, diapers, and sanitary needs
- Stock up on non-perishable foodstuffs
- Locate the main turnoffs for electricity, water and gas
- Package your valuables such as jewelry, titles, deeds, insurance papers, licenses, stocks, bonds, inventory, etc., for safe keeping in waterproof containers. Consider a safe deposit box.
- Check your storm shutters or other protection materials for windows and doors, such as plywood, pressboard and masking tape
- Remove any tree limbs near electrical wires and your home. "BE CAREFUL".
- Check with the Humane Society to arrange for safeguarding your pets and animals. They will not be allowed in public shelters.
- If you live alone or need assistance in evacuating, arrange to travel with friends or call your local Civil Defense or Police.

"HURRICANE WARNING"

(What to do when a Hurricane is expected to strike your area within 24 hours or less)

- Stay tuned to radio and television for official announcements on radio station WJCL (96.5 FM)
- If you are on high ground and your home is sturdy, and evacuation of your area has not been recommended:

  -board up windows and wedge sliding glass doors
  -draw all drapes and blinds to stop flying glass
  -bring pets inside
  -turn refrigerator and freezer to their coldest setting (store plastic bottles of water and newspapers in the vacant areas of your freezer, cover your freezer with blankets). Open only when necessary.
  -sterilize containers, and fill containers, bathtub and washing machine with water. You should have one quart of water per person, per day, for drinking.
  -double check your Portable Disaster Kit
  -lower television antenna and store it in a safe place
  -use phone only for emergencies

- Leave mobile homes

- Leave low-lying areas which may be affected by the storm when you are officially advised to evacuate-

  -local authorities will officially advise by television and radio when specific areas should be evacuated and which American Red Cross Shelters will be opened and staffed.
  -Act immediately - in daylight, if possible. Do not get marooned.
  -store perishables - take reasonable amounts of non-perishable foodstuffs with you.
  -turn off main switch for utilities (consider that you may want some utilities left on as long as possible for refrigeration, etc.)
  -lock your home securely
  -travel with care, leave early, and follow recommended routes.
  -stay away from low lying areas. Avoid obstructions, wires and trees. Keep listening to the radio.
  -carry your transistor radio, flashlight and valuables with you.
  -pack medicines, baby foods, diapers and personal hygiene requirements and bring them with you.
  -bring bedding you feel is necessary. None will be immediately available in shelters.
  -if you expect to be gone for some time you may want to bring a change of clothing.
  -if you suffer from more than minor medical problems or are pregnant, perhaps you should check with the hospital.

AFTER THE "ALL CLEAR" IS GIVEN

- Leave your shelter only after being officially released.
- Stay away from the disaster area unless you live or work there. Don't sight-see. DRIVE CAREFULLY.
- Advise interested friends and relatives that you are safe. It may be impossible for them to contact you.
- If you arrived at a public shelter on a public bus, return transportation will be provided.
- If your home was damaged, enter with extreme care.
- Avoid downed wires, escaping gas, downed trees, structurally damaged buildings, etc.
- Check all utility systems to be sure they are safe before turning them back on.
- Check to insure that your water is safe.
- Check for the possibility of food spoilage. Bury spoiled items.
- High water can drive snakes, animals and insects to high ground. Expect them and be prepared to protect yourself.

SPECIAL INSTRUCTIONS

In addition to following the instructions listed, residents of mobile homes, residents of high-rise apartments and those responsible for high-rise apartment buldings and boat owners should follow the instructions below.

Residents in Mobile Homes

- Mobile homes are particularly vulnerable to winds of hurricane force. Prepare to leave.
- Secure all outdoor objects. Tie them down or bring them inside.
- Secure all awnings over doors and windows. Tape or board windows and doors.
- Be sure that your home's tiedown system meets local and/or state laws. Contact your county or city building inspector for information.

- When the "Hurricane Warning" is given, go to a secure shelter. Do not stay in your mobile home during a hurricane. Your local Civil Defense will advise you which shelters are to be opened.

Residents in High-Rise Apartments

- If you have a floor captain, know him or her, and listen to their suggestions.
- Be familiar with the location of all exit stairways. Count how many steps there are from your door to the exit door in case the lights are out in the hall.
- Do not use the elevator, it will be used for disabled residents.
- Predetermine a location outside the building for members of your family to meet if asked to evacuate.
- Rehearse your evacuation plan. It may save your lives during threat of a hurricane.
- Take all loose items from your terrace or patio. They can cause damage.
- Close and lock all windows, sliding glass doors and shutters. If you do not have shutters, tape the glass in an "X" fashion with cloth-backed tape. Glass that is coated with a plastic sunscreen is already somewhat protected.

Board of Directors and Managers of High-Rise Buildings

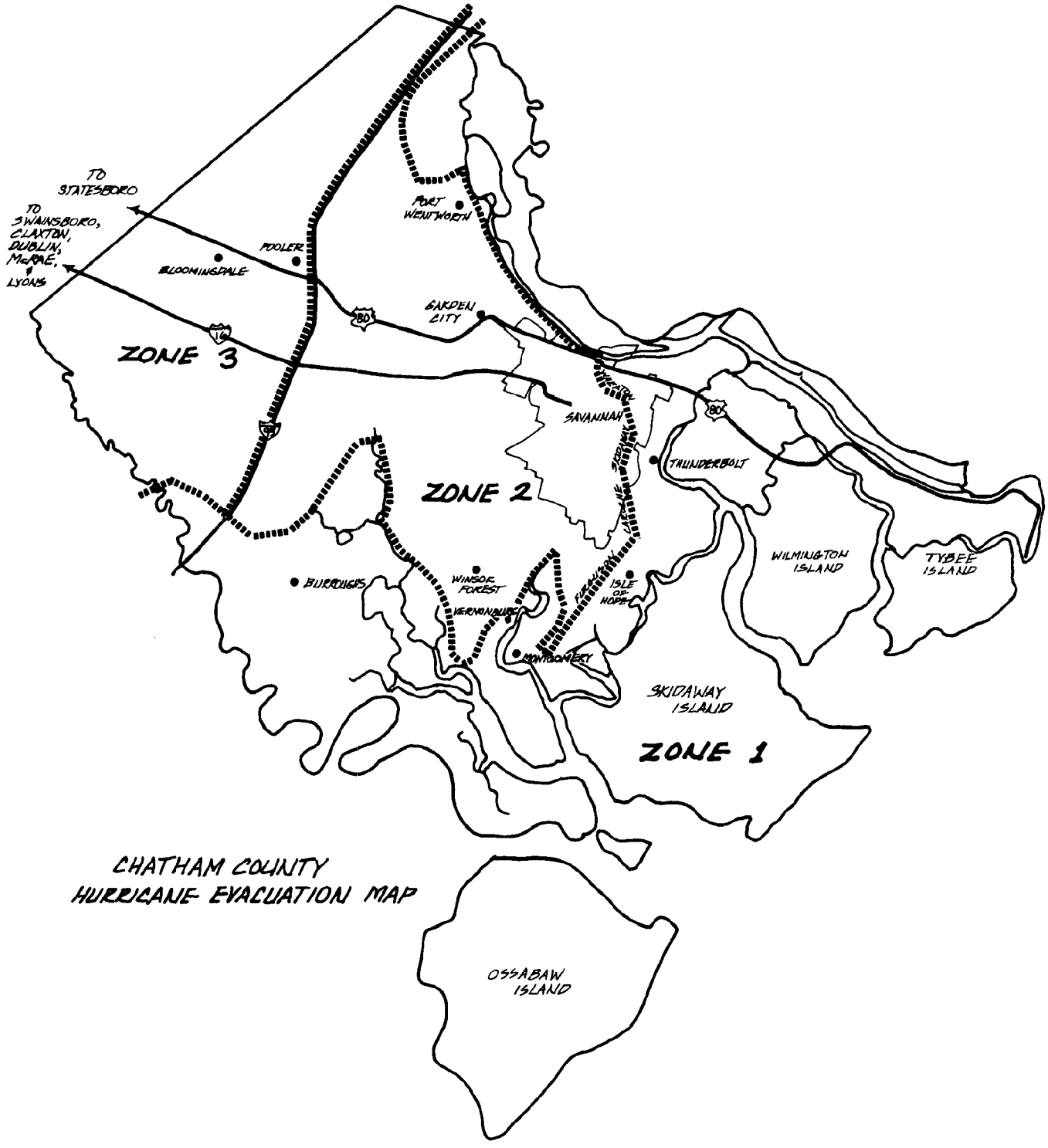
Retain a reputable engineering firm to inspect the building and foundation to determine if the building can withstand the erosion and battering of water, wind and waves that a hurricane brings. If the foundation is safe and the building is sound, then the residents can consider staying unless the local officials recommend evacuation. If the safety of the building is in doubt, then all occupants must plan on going to a shelter. If your building is structurally sound it may be used for vertical evacuation.

Organize a group of responsible residents to develop a plan that will:

- provide for monitoring the hurricane's course by use of the information from Weather and local officials.
- secure grounds by setting up guidelines for the safety of cars and boats.
- provide for emergency power that will function in case the storm surge floods the buildings.
- make certain that elevators are not operated during the storm.
- locate a safe area for the occupants to congretate, encouraging them to stay away from windows and to wedge patio doors to prevent the vibration from ripping them loose.

- consider a provision for sheltering other people who are in the area and might be trapped when the evacuation routes are closed by the effects of the approaching hurricane.

- provide each floor with a floor captain or captains who have been educated in hurricane preparedness and evacuation procedures and are able to instruct the occupants of their floor on what to do in the event of a hurricane.



CHATHAM COUNTY
HURRICANE EVACUATION MAP

CHATHAM COUNTY

Zone	Area	Route & Destination
1	Tybee Island, Wilmington Island, Thunderbolt, Skidaway Island, Isle of Hope, Vernonburg, Montgomery, Burroughs, Savannah (areas east of Wheaton and Skidaway Road) Ossabaw Island	Most direct route to U.S. Highway 80 to Statesboro.
2	Remainder of Savannah, Port Wentworth, Garden City, Windsor Forest	Most direct route to I-16 West to Claxton, Lyons, Swainsboro, McRae and Dublin (law enforcement officers will direct you to the appropriate city).
3	Chatham County area west of I-95 including Pooler and Bloomingdale	Most direct route to I-16 west of Dublin.